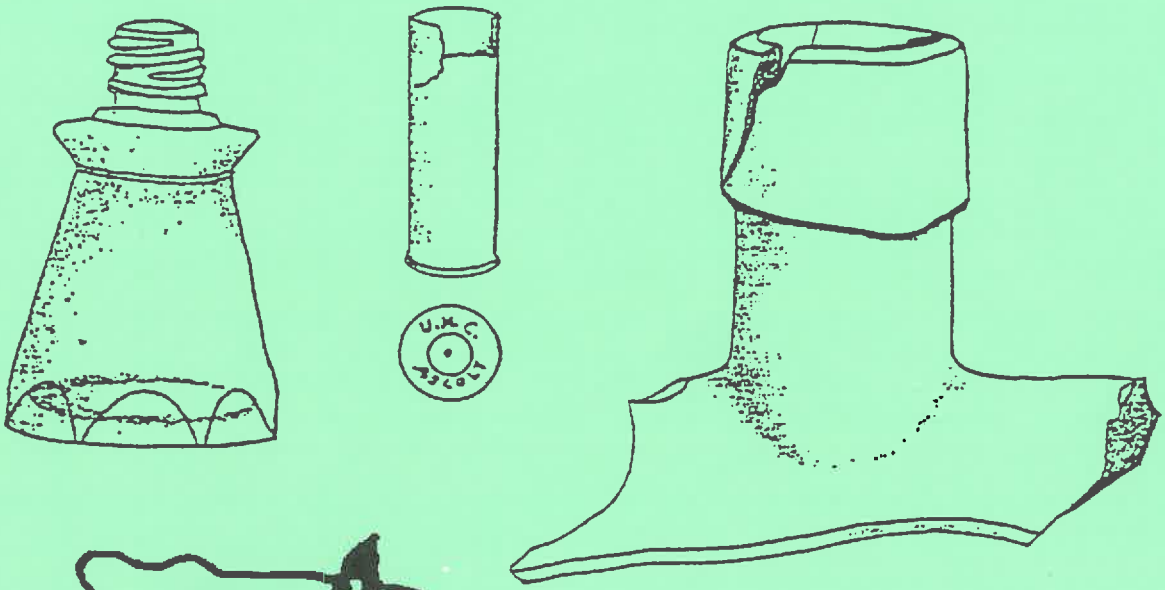
THE WYOMING ARCHAEOLOGIST



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BONNIE JOHNSON, EDITOR
P.O. BOX 202
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THE WYOMING ARCHAEOLOGIST

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ANNOUNCEMENTS

RAPA NUI RENDEZVOUS

The University of Wyoming will be the host sponsor this summer to the "Rapa Nui Rendezvous: International Conference on Easter Island Research." This international meeting will be held in Laramie, August 3-6, 1993, and will focus on current scientific research on Easter Island and East Polynesia. Fifty presentations will be given by the leading Easter Island scholars from around the world. the conference is being held in recognition of the contributions to Easter Island Research made by the late Dr. William Mulloy, Wyoming anthropologist, and his colleagues of the 1955-56 Norwegian Expedition. All surviving members of the Norwegian Expedition will be in Laramie for the conference, including the expedition leader, Thor Heyerdahl, the world-famous explorer. Brochures explaining more about the conference and the associated social activities are currently being circulated to all WAS chapter officers. Registration forms are with the brochures. Should you have further questions, however, you may contact Dr. George W. Gill, Rapa Nui Rendezvous Chairman, Department of Anthropology, University of Wyoming, P.O. Box 3431, Laramie, WY 82071-3431, or by phone (307) 766-6282 or 5136, or by FAX (307) 766-3700.

MINI-GRANT AWARDED

The Friends of South Pass City recently were awarded a Wyoming Council for the Humanities (WCH) Mini-Grant for $2,000 to support an interpreter of this summer's Esther Morris Cabin excavations at South Pass City State Historic Site. The title of the grant is "Interpreting the Esther Morris Cabin Excavation: A Public Archaeological Project at South Pass City State Historic Site." This volunteer excavation project is cosponsored by the Wyoming Parks and Cultural Resources Division of the Wyoming Department of Commerce (including the Wyoming State Archaeologist's Office and Wyoming State Parks and Historic Sites) and the Bureau of Land Managment, Lander Resource Area. The proposal was funded with $1,000 of WCH outright grant funds and $1,000 contributed to the WCH by Frontier Archaeology of Worland, Wyoming, Mr. Jim Welch, CEO.

This support of Wyoming archaeological research by Frontier Archaeology will affect many people. Between 10,000 and 50,000 people are expected to visit South Pass City during the month of July when the excavations will be conducted. Having an interpreter on staff will allow the professional and volunteer crew to do more work and provide the public with a better understanding of what is going on at the excavations. Frontier Archaeology deserves a big round of thanks and appreciation for their support of this type of research on Wyoming Archaeology.

NEWS REPORTS

The South Pass News: History Unearthed
by Todd Guenther, Curator,
South Pass City State Historic Site

During June and July of 1992, over 30 volunteers from around the state and nation, assisted by professional archaeologists from the staffs of South Pass City State Historic Site, the Office of the Wyoming State Archaeologist, the State Historic Preservation Office and the Bureau of Land Management (Lander and Rawlins offices), completed the first phase of a major archaeological excavation project at South Pass City State Historic Site. "It's a good cooperative program that benefits everybody," according to Craig Bromley, BLM archaeologist in Lander.

Assistant Wyoming State Archaeologist, Dr. Danny Walker, explains that the volunteers, ranging in age between 11 and "70-something" are easy to train. "They're here because they're interested in archaeology and want to be doing this." The volunteers contributed a minimum of two days working on the project, though some worked as long as ten days. During this period they endured sunburn, broken finger nails and strained backs as they slowly scraped and sifted through a century of dirt. "It's just like an Easter egg hunt!" exclaimed Kay Veak of Norwalk, Iowa where she normally works as an embroidery machine operator.

Walker elaborated that everyone comes out ahead in a project of this sort. The volunteers get to try their hands being Indiana Jones, while "enabling us to undertake research we could not do otherwise." Todd Guenther, South Pass City State Historic Site curator, interjects that the site is becoming a teaching center, not just a static museum that people walk through to observe the exhibits. "We want to give people a variety of hands-on experiences; part of the intention of South Pass City is to educate people, not just have them walk through the buildings and say, "Oh, that's nice." We want to help people participate in researching our past, and then they can help disseminate that information to a larger audience in the communities where they live."

Volunteer Maggie Layton, President of the Fremont County Historical Society, commented, "I wish 40 years ago I'd have taken up archaeology. I just thought the dig would be great fun. I wanted to learn how the archaeologists do this, and it's great history." Tammy Davis of Lander concluded, "It's my life's dream to do this kind of work. In fact, I'm thinking about going to college to study archaeology."

The project goals are to locate and identify the buried remains of the Esther Hobart Morris cabin. Morris, the sole Wyoming resident represented in Statuary Hall in the United States Capitol Building, was the first woman to hold political office in the United States. In 1870, she was appointed Justice of the Peace in South Pass City. The community is sometimes called the birthplace of woman suffrage since it was a senator from the town who, in 1869, introduced the first successful legislation granting women the right to vote or hold office. It was that landmark bill which earned Wyoming the nickname, "The Equality State."

Many attempts have been made over the years to mark the location of the Morris Cabin. Most notably, the Business and Professional Women's Clubs around the state raised money to construct a memorial cabin in 1976, near where Morris was believed to have resided. However, due to inadequate historical information and changes in the appearance of the town since its virtual abandonment in 1872, the precise location of the historic Morris Cabin has never been determined. In 1991, the BLM's Lander Resource Area offered to help sponsor the public excavation project to locate the cabin as part of their High Plains Tribute. This BLM program is designed to increase public involvement in archaeological research and interpretation on public land. Archaeological information obtained early in 1992 indicated the Morris Cabin might be even closer to the east edge of the site than was believed previously. This is what

guided the "underground explorers" to the location at which they began to dig.

Initial excavations, conducted in the next lot east of the Morris Memorial Cabin, which is familiar to visitors at the site, recovered many artifacts. Among them are nearly 100 pieces of newspaper type, a printing press oiling can, and a fragment of a marble slab used in typesetting. Esther Morris' son, E.A. Slack published the South Pass News in the next cabin west of the family residence. The newspaper is one of Wyoming's oldest and first appeared before Wyoming was even created from part of Dakota Territory. The Gordon Hand Press which Slack used in his newspaper business survived a fire in South Pass City and was moved to Laramie in December 1871. It remained in Laramie, eventually at the University, until this year. The press is currently on exhibit back home in South Pass City State Historic Site. It is on loan through the generosity of the University of Wyoming American Heritage Center.

Discovery of the newspaper office led the archaeological crew to explore even farther east. According to Craig Bromley, "We get pretty excited when we find the printing press artifacts, but we still need to locate the Morris Cabin." In the next lot investigated, fragmentary remains of a rubble stone foundation were uncovered about two feet beneath the modern ground surface. This is believed to be part of the foundation of the Morris Cabin. Thus it appears the memorial cabin was built on lot 42, South Pass Avenue, some 50 feet west of lot 38 which was the Morris' family home. Beneath the foundation found in 1992 was a 30 ft. x 30 ft. x 5 ft. deep catchment basin lined with clay, which was probably used by early gold miners to collect precious water for their sluicing operations. That depression was filled with large amounts of trash in 1867 or 1868, prior to construction of the cabin the Morris family lived in.

Once a larger area is excavated in 1993, it is expected that the results will unequivocally identify the Morris Cabin location. In recent years, an 1869 letter written by Morris to a relative was discovered. In this letter, she included a floor plan of her house and the dimensions of the rooms. Thus, with additional work next season, it should be a simple matter to determine whether the foundation partially exposed this summer is part of the Morris Cabin, or whether the search must continue elsewhere.

In addition to the printing press parts, other artifacts recovered include men's and women's shoes, and other clothing fragments such as suspender buckles and corset stays, buttons and button hooks, door latches dated 1866, Civil War uniform buttons, cartridge cases from civilian and military weapons, barrel hoops, bottles, square nails, many domestic artifacts like dish fragments, a tea kettle, even newspaper fragments, and others. When the artifacts are recovered, each one is bagged, notes are made recording exactly what it is, how deep it was found and in what soil stratum (level), and where in the excavation.

During the coming winter, Guenther, Bromley and Walker will analyze the data and prepare a preliminary report on the project to record their findings and guide future work in the area. The artifacts recovered from the dig will remain at South Pass City State Historic Site which boasts artifact conservation laboratory and storage facilities second to none in the state. "This is certainly the logical place to keep them," according to Bromley. Eventually, some artifacts will be put on exhibit.

Curator Todd Guenther says, "We are trying to do a lot more than simply discover and mark the accurate location and dimensions of the Morris Cabin. We are currently preparing a massive history of the town and a management plan for future development. If we can pinpoint the location of one or two lots in this part of South Pass City, we can begin to identify other foundations and depressions in the area, which will enhance and refine our understanding of the town. Right now, we know very little about the east end of town compared to other, better documented areas such as the central business district where there are still many standing historic buildings. Not only will this project let

us commemorate the accomplishments of a prominent figure in Wyoming history, but it will give us a better understanding of the history of the whole town."

"Also, we have in the past, excavated the cabin sites of several working class families, but this will be the first time we have been able to obtain artifacts from one of the local "aristocrats" for comparative purposes. What kind of goods could these people -- Judge Morris and her family -- afford compared to their neighbors? Was there any difference? Perhaps so little variety was available in the stores during that first 1868-1872 boom here that everybody lived in pretty much the same circumstances. We know the Morris house was made of logs with a dirt roof, which was common, but what else will we find about their standard of living, health, or habits?"

Guenther concludes, "This year [1992] was more or less a test project, to see if this program would actually work. We and the volunteers have been so pleased with the results that we hope to repeat the project next year -- actually close in on and find the Morris Cabin, and in turn achieve our other goals as well. If we can obtain funding for food and supplies, we will definitely institute Phase II of the "Search for the Morris Cabin" next year." Anyone interested in participating could call South Pass City State Historic Site at (307) 332-3684.

South Pass City State Historic Site consists of 25 historic buildings furnished with 30,000 original artifacts. The old ghost town was acquired by the State in 1966 and has been enrolled on the National Register of Historic Places since 1972. Restoration efforts are ongoing at the site which is administered by Wyoming State Parks & Historic Sites, Division of Parks & Cultural Resources, Wyoming Department of Commerce.

ARCHAEOLOGICAL INVESTIGATIONS AT THE BRIDGE TENDER'S HOUSE FORT FRED STEELE, WYOMING

by
William R. Latady, Jr., and Allen D. Darlington

ABSTRACT

Before stabilization activities in 1982, limited archaeological testing was undertaken at the Fort Fred Steele Bridge Tender's House. Questions existed concerning later replacement or remodeling of the original structure. Archaeological investigations were oriented toward establishing the date of initial construction on the structure and identification of any later building activities. Information gained through excavation, supplemented with historical research, suggests the extant structure was built before 1885 and is probably the original Bridge Tender's House.

INTRODUCTION

Fort Fred Steele is located approximately 15 miles east of Rawlins, Wyoming where the Union Pacific Railroad crosses the North Platte River (Figure 1). The fort was established on June 30, 1868 by Richard I. Dodge and functioned as a military post until August 7, 1886 when it was decommissioned (Murray 1972: 147). Following the fort's abandonment by the Army, it was used as a headquarters area for livestock and railroad tie industries.

The Union Pacific Railroad built several major structures at Fort Fred Steele during the military occupation. The main line track, three successive bridges, a railway station, water towers and the Bridge Tender's House were all constructed during the 18 years the fort was an army post. Following the post's abandonment, the Union Pacific constructed a steel bridge, double trackage and a brick pumping house (Murray 1972:197). The bridge, track and pumping house are extant, but only the bridge and track are in use.

The Bridge Tender's job was to guard against fires that would damage the bridge causing railroad traffic to cease (Historical Research Associates 1982). Bridge tenders were employed by the Union Pacific at Fort Fred Steele into the first half of the 20th century (Sharon Bollinger, personal communication, 1982). With the replacement of the original wooden bridge with a steel bridge and steam by diesel locomotives, bridge tenders were no longer required. As a result, the house was abandoned. Few written records concerning the Bridge Tender's House survive. Murray (1972: 182) describes the original structure as a one and one-half story frame building that was constructed in 1869 and containing a wood stove. A structure resembling this description, currently called the Bridge Tender's House, is next to the modern railway. A map of Fort Fred Steele dating to 1870 (Figure 1) suggests that a Bridge Tender's House (Bridge Warden) has existed in the present location since 1870. Although there is no documentary evidence of more than one construction date, a wooden building near the railroad tracks and thus close to wood and coal burning locomotives, would be susceptible to fires. Such a building may have burned down and subsequently rebuilt. Conversely, the railroad bed has been moved at least twice since it was originally constructed and the possibility exists that the extant structure is not the original house. The lack of architectural construction details made archaeological excavations a key to determining if this structure is the original Bridge Tender's House. Consequently, archaeological investigations were oriented toward establishing the initial construction date of the house and identification of any remodeling

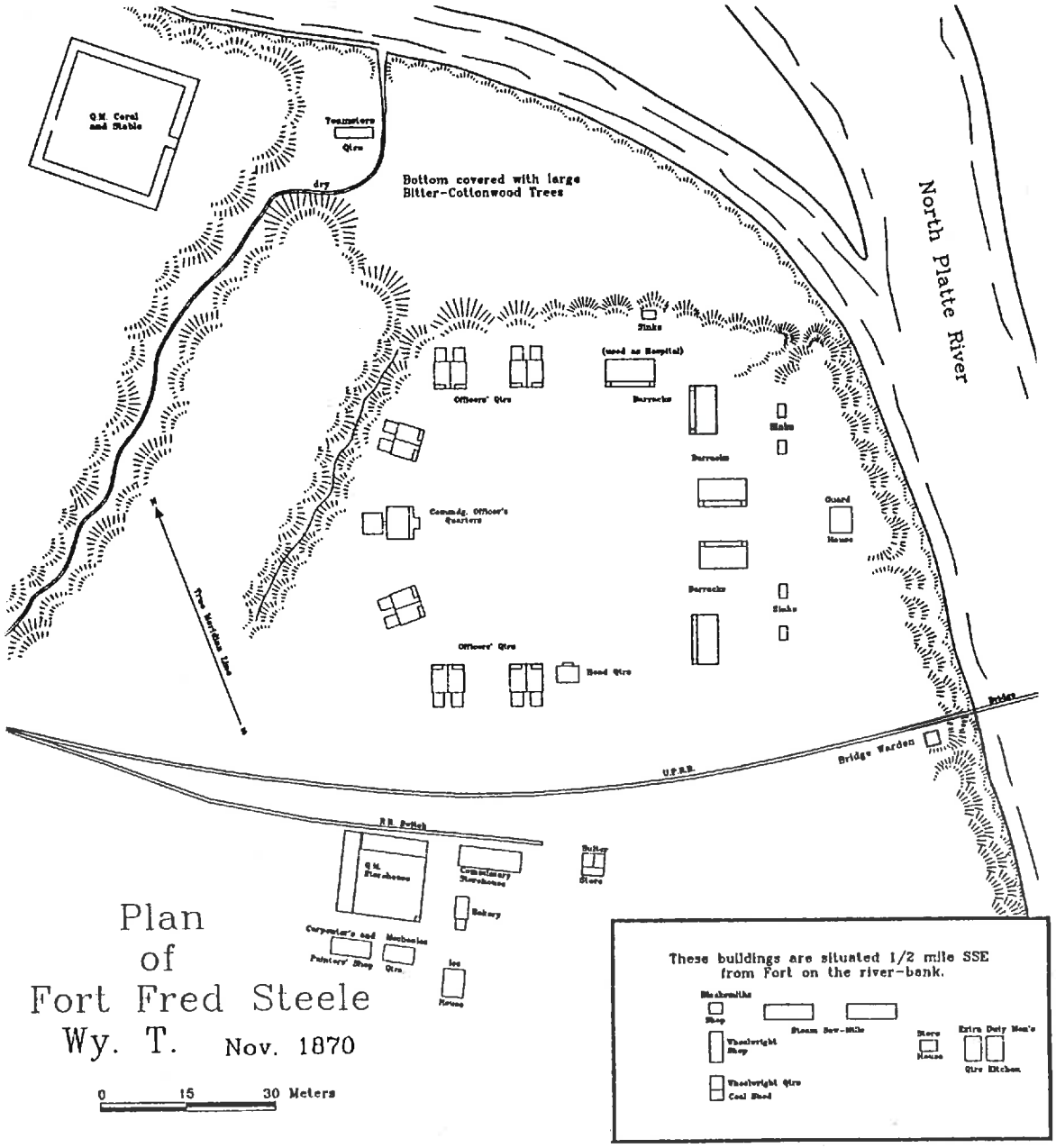

Figure 1: Location and plan of Fort Steele (Original map courtesy of The American Heritage Center, University of Wyoming).

episodes.

HISTORICAL OVERVIEW

Presented below is a brief summary of the history of Fort Fred Steele and the Union Pacific Railroad. More extensive coverage of these events is presented by Murray (1972) and Sabin (1919).

The history of Fort Fred Steele is closely related to the history of the Union Pacific Railroad. On December 2, 1863 the Union Pacific Railroad began construction of its segment of the first transcontinental railroad at Omaha, Nebraska (Sabin 1919:86).

Construction began at a time when Native Americans were increasingly hostile on the western Plains. Military protection was considered vital to insure the railroad's completion and subsequent utilization (Murray 1972:141).

The Army and railroad officials' greatest concern was the country west of Cheyenne. Here the railroad traversed the continental divide in what is now southern Wyoming. The problems in construction and maintenance of the railroad were exacerbated by threats from indigenous populations. Southern Wyoming was inhabited by bands of Cheyenne, Sioux, Northern Arapaho, Shoshone, Bannock and Ute (Reher 1977, 1979; Spath 1984). Any or all these groups could have been provoked into causing damage to the railroad itself or harming passengers and personnel. Military protection of the railroad across the region hinged on three posts located strategically along the proposed railroad route. To the east, where the rail line crossed the Laramie River, Fort Sanders was constructed. Fort Bridger, in southwestern Wyoming, was the western post. Fort Fred Steele became the central post where the railroad crossed the North Platte River, (Murray 1972: 143-144).

Military access to the railroad simplified supply logistics and provided increased efficiency in moving troops and supplies when patrolling the territory. Concurrent with construction of the railroad was the building of the telegraph system. Locations of telegraph relay and railroad stations coincided (Fawcett 1981:12), thus providing the Army with ready access to information. The combination of access to information, capability for quick response, and strategic base location provided the Army with the means for rapid deployment and thus effective strategic operations.

Military operations undertaken at Fort Fred Steele varied during its years as a military post. Rapid rail transportation and telegraphic communication provided the troops with quite a bit of active field service. Military personnel were also involved in civilian incidents including the strikes and riots at coal mines in Green River, Rock Springs, and Carbon. Throughout the brief existence of Benton, Fort Fred Steele provided the "end-of-tracks town" with a military government. Upon notification, soldiers would pursue stock thieves. Escorts were provided for geological expeditions into the countryside surrounding Fort Fred Steele. Fort personnel were also responsible for the inspection and delivery of supplies to the Ute reservation in Colorado. Soldiers even worked on wagon road repairs between the Rock Creek Station and Fort Fetterman (Murray 1972:151-152).

During the early 1880s, the final military operations were conducted at Fort Fred Steele. In the summer of 1886, the decision was made to abandon the fort (Murray 1972:170-171). Following the official announcement, many of the fort buildings were sold to the Cosgriff brothers. The brothers also purchased the land immediately surrounding the fort structures and used that land and some buildings in their sheep ranching activities (Fawcett 1981:4). In 1915, the Leo Sheep Company purchased the Cosgriff holdings (Murray 1972:205). The Leo Sheep company maintained the fort buildings until the State of Wyoming acquired the land in 1973 (Fawcett 1981:5).

ARCHAEOLOGICAL INVESTIGATIONS

Archaeological investigations (see Latady and Darlington 1983) were constrained by the short time period, June 21-22, 1982, allowed before stabilization activities at the Bridge Tender's House. Investigations consisted of hand excavation units and monitoring of mechanical surface stripping of 30 square meters around the house. Three one x one meter test units were established on the northern and eastern sides of the structure (Figure 2). The three units were placed directly next to the structure beneath windows and next to a door where ground disturbance would occur during the stabilization process. Sediments were excavated in arbitrary ten centimeter levels and screened through 1/4 inch hardware cloth.

Stratigraphy differed slightly between the two sides of the building. These differences probably reflect post-original construction

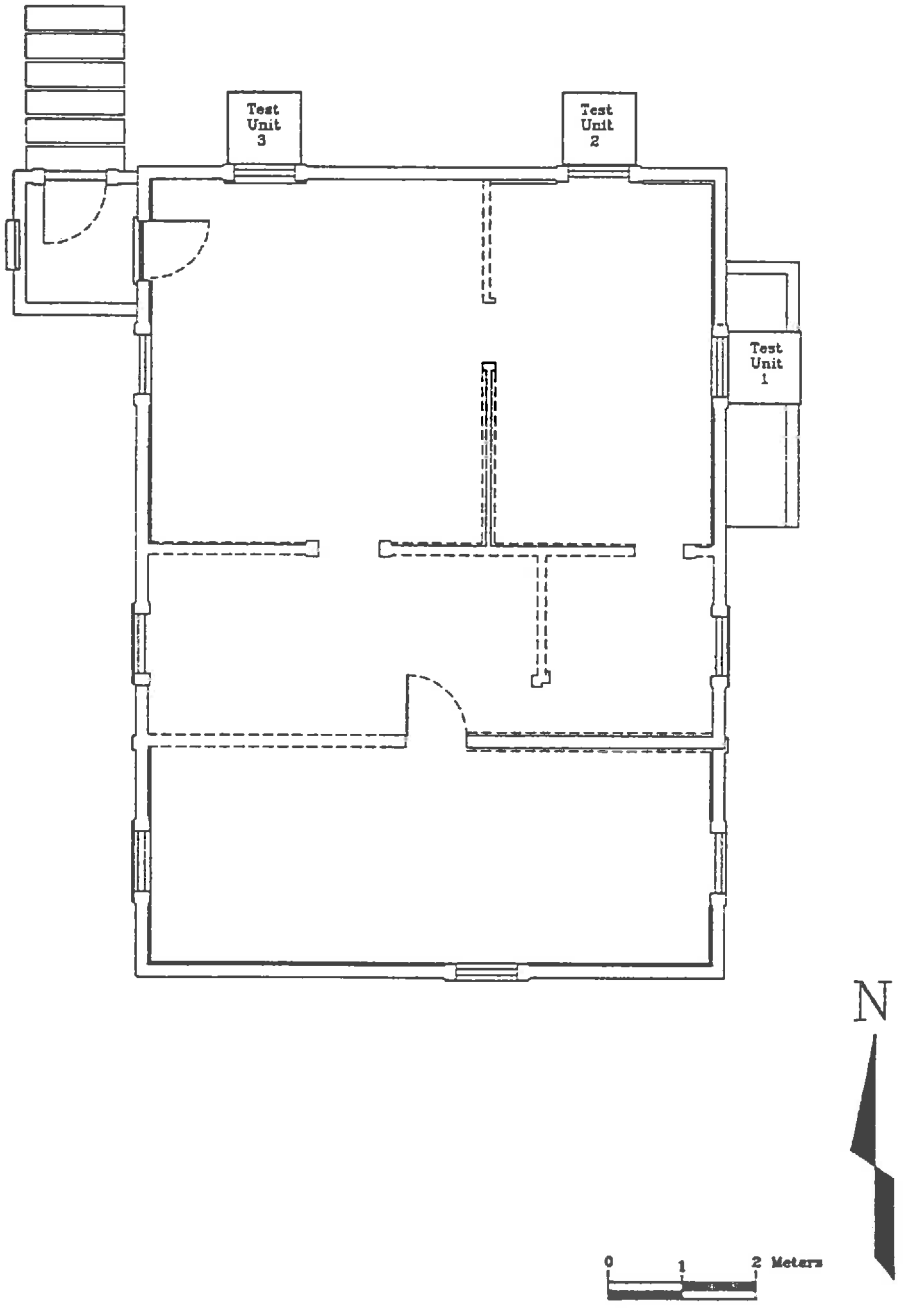

Figure 2: Location of test units, Bridge Tender's House.

activities including, trampling, landscaping, repairs, and additional construction on the house. Generally the sediments from the three units can be described as sandy silts containing water worn gravels. Sediments on the eastern side of the building appear to be composed of loose fill that was added around the base after construction of the house. Excavations reached

a depth of 80 centimeters below surface and sediments remained consistent; an unconsolidated sandy silt containing gravels and water worn cobbles.

The test units placed on the northern side of the house reached a depth of 50 centimeters below the surface. Two distinct sediments are present; a dark brown, organically rich, unconsolidated gravelly sand between ten and 15 centimeters thick (Unit I) that overlies a light brown gravelly sand (Unit II). The gravels in both zones are water rounded.

Mechanical stripping of sediments reached a depth of 20 centimeters. Stratigraphic Unit I and enough of Stratigraphic Unit II were removed to expose the foundation to simplify necessary repairs.

RESULTS

The construction sequence of the Bridge Tender's House is illustrated (Figure 3). The structure was constructed on Stratigraphic Unit II, employing a series of foundation timbers on all four sides. Because of the steep incline of the terrace on the eastern side of the house, concrete blocks were used to shore up the foundation timbers. A frame was added to the foundation and rough cut pine boards nailed to the frame to form walls. Finally, the exterior was painted red.

The three test units yielded 487 artifacts (Table 1). Not unexpectedly, because of the placement of the units under windows and next to doors, 89% of these items relate to construction activities. The remaining artifacts relate to food preparation, personal attire and miscellaneous activities. Two of the artifact types are temporally diagnostic, part of a brown glass bitters bottle and wire nails. Only the upper portion of the bottle was recovered. It is molded with a broad sloping neck finish (Figure 4). Without a manufacturer's mark on the bottle fragment, an exact date cannot be assigned. Wilson (1981:26) however, provides an illustration of a bitters bottle dating between 1865 and 1885. The bottle recovered during these excavations resembles the Wilson vessel, suggesting a similar manufacture date.

Wire nails were invented in France during the early 19th century. By 1850, machines had been invented for manufacturing these nails (Fontana et al. 1962:47). During the next 50 years, a gradual switch occurred from cut to wire nails. According to Rosenberg and Kvietok (1981:86), an approximate percentage of wire to square nail occurrence is:

0.00%	pre-1887
0-20%	1887-1889
21-75%	1889-1895
76-99%	1896-1902
100%	post-1902

Cut and wire nails could be seen in some boards exposed during excavation and were also recovered from the test units. Both types of nails were counted and percentages calculated (Table 2) for each test unit. These totals, when compared to the percentages above, suggest a construction date between 1896 and 1902.

In this instance, nail percentages from the archaeological assemblage are probably better indicators of remodeling or repair than age. Recovered nails recovered apparently represent at least two inseparable construction stages. The pine boards are affixed with cut nails while the siding is attached with wire nails. Siding covered the pine boards that formed the original walls. If the remaining pine boards are fastened exclusively with cut nails, the house was probably constructed before 1887.

Mechanical earth moving activities produced two artifacts, a nail polish bottle and a .45 caliber Long Colt shell (Figure 4). Based on a continuous thread finish, this bottle was manufactured no earlier than 1924 (Berge 1968, 1980). The shell is stamped "U.M.C.," which stands for Union Metallic Cartridge Company. The cartridge can be dated to 1910 or before, since U.M.C. merged with Remington during that year (Gillio et al. 1980).

The bitters bottle and wire nails suggest this building was constructed before 1887. The cartridge and nail polish bottle indicate the structure continued in use during the first half of the 20th century before being abandoned.

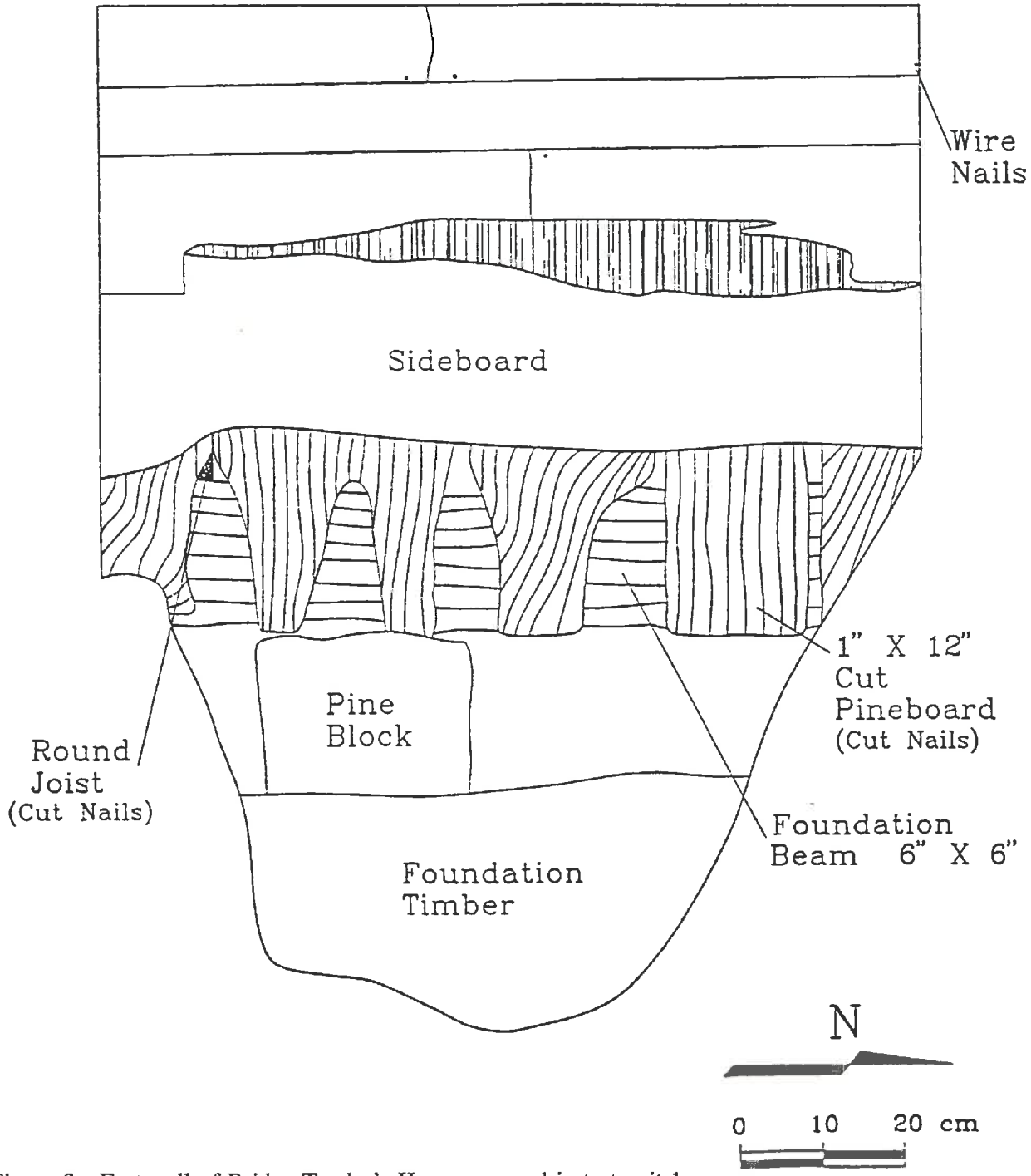

Figure 3: East wall of Bridge Tender's House exposed in test unit 1.

The two artifacts recovered during the monitoring reflect activities that were not represented by the artifacts found during hand testing. Undoubtedly, this is because of the limited excavation sample. If an accurate picture of the types of artifacts and activities, and more detailed architectural information are to be recorded, then additional excavations should be con-

TYPE	TEST UNIT 1 NUMBER	TEST UNIT 1 PERCENT	TEST UNIT 2 NUMBER	TEST UNIT 2 PERCENT	TEST UNIT 3 NUMBER	TEST UNIT 3 PERCENT
Architecture						
Window pane	250	51.33	88	18.07	--	--
Caulking	4	0.82	--	--	--	--
Pine board	1	0.20	--	--	4	0.82
Roofing slate	1	0.20	--	--	--	--
Wire nails	11	2.26	3	0.62	2	0.41
Cut nails	48	9.86	9	1.85	1	0.20
Brick frags	--	--	12	2.46	--	--
Total	315	64.67	112	23.00	7	1.43
Kitchen						
Bottle Glass	7	1.43	--	--	2	0.41
Glass Dishes	5	1.03	--	--	--	--
Ceramics	2	0.41	--	--	--	--
Total	14	2.87	--	--	2	0.41
Clothing						
Buttons	2	0.41	--	--	--	--
Snaps	1	0.20	--	--	--	--
Boot tack	1	0.20	--	--	--	--
Total	5	0.81	--	--	--	--
Bone	6	1.23	1	0.20	1	0.20
Activities						
Misc. hardware	16	3.28	4	0.83	2	0.41
Storage items	--	--	--	--	1	0.20
Other	1	0.20	1	0.20	--	--
Total	17	3.48	5	1.03	3	0.61

Table 1: Artifacts recovered at the Bridge Tender's House (functional categories adapted from South 1977).

ducted.

DISCUSSION

A few preliminary remarks concerning the Bridge Tender's House can be made. Test excavations revealed a single construction stage and at least one remodeling episode. An addition to the southern side of the house is absent in an 1885 photograph, suggesting at least one other remodeling episode occurred (Figure 5). Historical research did not reveal evidence of more than one construction date or more than one structure. Diagnostic artifacts and the photograph indicate this structure has been in place since 1885. The map (Figure 1) shows that the Bridge Warden's House has existed at Fort Fred Steele since 1870. Finally, an artist's rendition of the fort dated 1870 (Figure 6) also contains what appears to be the Bridge Tender's House in the same general location as on the map. Based on historical documents and diagnostic artifacts, we believe the extant structure is the original Bridge Tender's House.

One other structure, an enlisted men's barracks, has been test excavated at Fort Fred Steele (Fawcett 1981). A one percent excava-

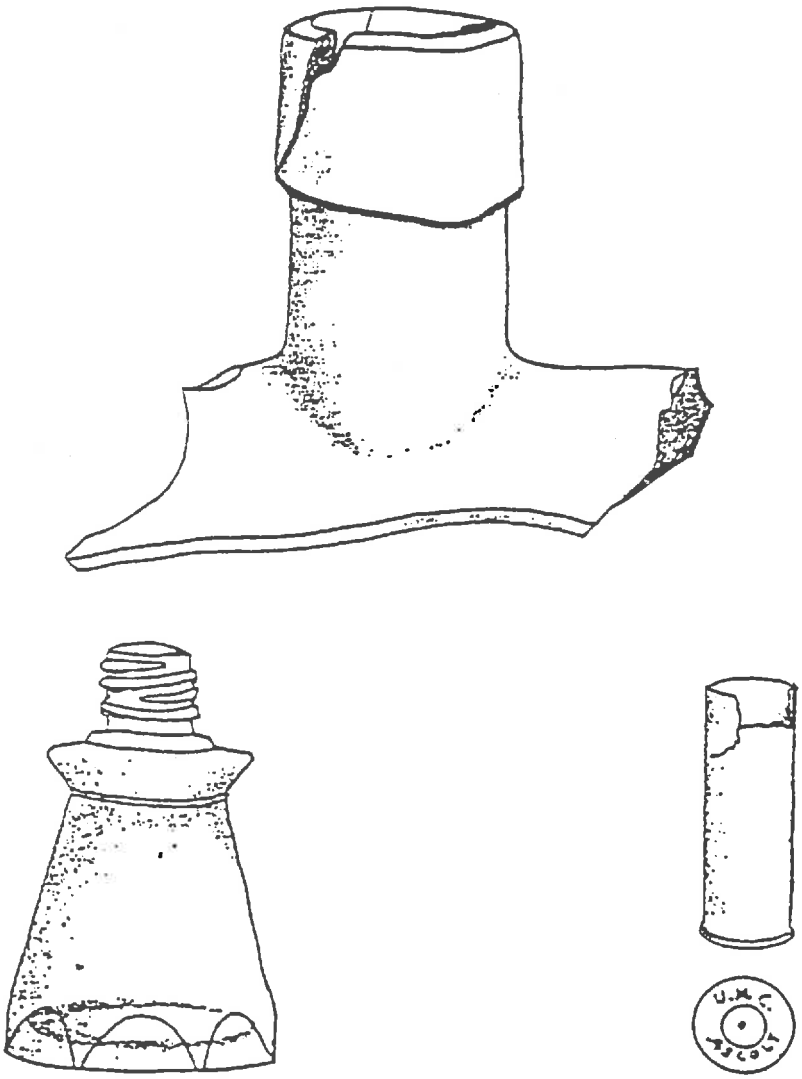

Figure 4: Diagnostic artifacts from Bridge Tender's House. Upper = bitters bottle. Lower left = nail polish bottle. Lower right = .45 long colt shell.

tion sample resulted in the collection of over 15,000 artifacts from that barracks. While many artifact groups represented in the barracks assemblage are not present in the collection from the Bridge Tender's House, the collections are similar in that artifacts relating to architecture dominate the assemblages from the two structures. Fawcett (1981) attributes the high frequency of architecturally related artifacts to fire that destroyed the barracks in 1976. He also posits a relationship between the manner in which a building deteriorates and the degree to which architectural elements dominate an assemblage (Fawcett 1981: 88). In this case, similar artifact frequencies between the Bridge Tender's House and the barracks may have little to do with site formation and transformation processes. The Bridge Tender's House is still intact and no evidence exists for fire, dismantling, natural collapse, or scavenging. Instead, a sampling design consisting of three judgmentally placed test units, placed in locations where

TEST UNIT	WIRE NAILS NUMBER	WIRE NAILS PERCENT	CUT NAILS PERCENT	CUT NAILS PERCENT
1	11	14.9	48	64.4
2	3	4.1	9	12.2
3	2	3.0	1	1.4
Total	16	22.0	58	78.0

Table 2: Nail frequencies by type recovered from Bridge Tender's House.

broken window glass is likely to occur, undoubtedly skewed the sample toward architectural artifacts.

The location of the three test units exterior to the windows precludes comparison to units away from these architectural features. For instance, questions concerning trash discard in formal locations versus casual disposal of debris from windows and doorways could not be addressed. That is, did the inhabitants of the Bridge Tender's House use a formal dump area or was much of the refuse casually tossed from the door? Certainly, the location of the Bridge Tender's House immediately above the North Platte River suggests the river as a convenient dumping area. Periodic scouring of the river bank by flooding would have limited odors at least temporarily. Although not identified on the maps from the fort, a formal dump probably existed and was used during the military and subsequent civilian occupation (see also Miller and Wedel 1991).

SUMMARY AND CONCLUSIONS

Historical research and evidence obtained through archaeological excavations indicate a pre-1885 construction date for this structure at Fort Fred Steele called the Bridge Tender's House. Test excavations and surface stripping revealed evidence for only one construction stage, although exterior remodeling occurred. Based on the historical records and the archaeological investigations, we believe the extant structure is the original Bridge Tender's House built in 1870.

Comparison of artifacts from an Enlisted Men's Barracks with those from the Bridge Tender's House permitted a preliminary evaluation of causal variables constraining artifact frequency variation. Because of problems in sample bias at the Bridge Tender's House however, data comparability are questionable. Nevertheless, discrepancies noted can serve as the basis for further research at the fort.

ACKNOWLEDGEMENTS

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Figure 5: Photograph of Fort Fred Steele Bridge Tender's House, dated circa 1885 (Photograph by C. R. Savage, courtesy of The American Heritage Center, University of Wyoming).

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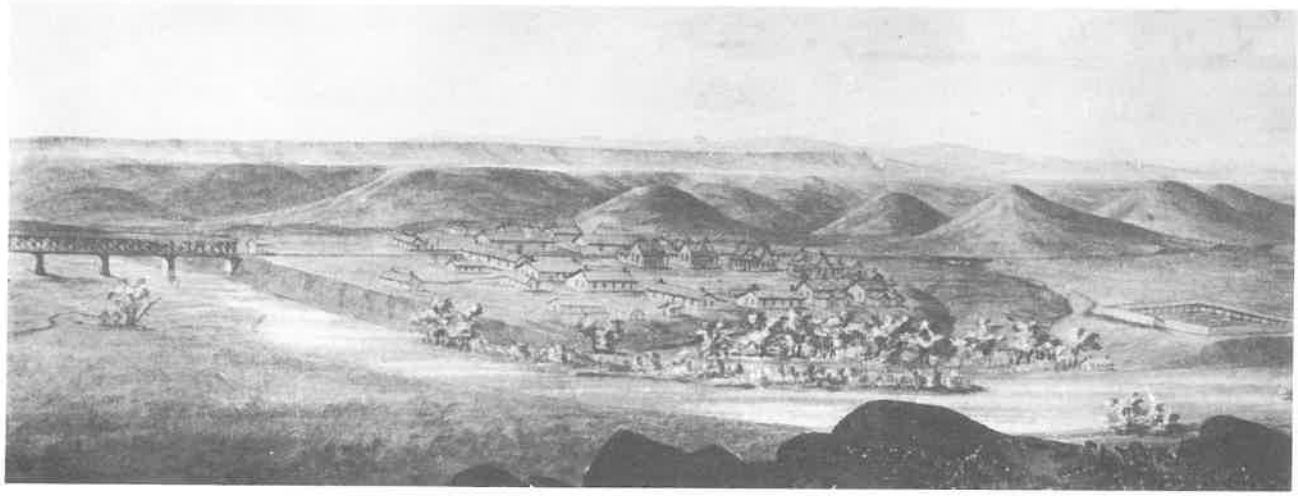

Figure 6: Artist rendition of Fort Fred Steele (courtesy of The American Heritage Center, University of Wyoming).

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William R. Latady, Jr.
Division of Conservation Archaeology
P.O. Box 125
Bloomfield, NM 87413

Allen D. Darlington
1606 Glasgow
Rawlins, WY 82301

AN ASSESSMENT OF THE NEWLY DISCOVERED UPPER POWDER SPRING SITES: A HUNTING COMPLEX IN SOUTHWEST WYOMING

by
Dirk Murcray

INTRODUCTION

Archaeological Services of Western Wyoming College's 1992 excavation of sites near Powder Wash, Colorado, indirectly led to an unexpected discovery. Untempted by the alluring nightlife of Powder Wash, members of the excavation crew often spent evenings searching the rugged, juniper-forested, sandstone outcrops along the Colorado/Wyoming border attempting to discover the density and nature of prehistoric sites relating to those being excavated. The first excursion was to explore a small butte overlooking one of the sites (48SW7933) we were digging. To our surprise, we discovered a previously unknown rock art site. Thus encouraged, additional forays produced increasingly exciting new finds, resulting by summer's end in the discovery of a hunting complex covering six sections of land. The complex includes hunting blinds, rock shelters, panels of incised and pecked petroglyphs and charcoal pictographs, stone circles, wickiups, and, most importantly, a drift fence constructed of juniper logs encircling a three x one mile area (Figure 1).

The preliminary investigation of the hunting complex was essentially a blind reconnaissance performed on a volunteer basis. The primary goal was to locate, and document as thoroughly as possible, all portions of the drift fence and any potentially related sites. As the investigation proceeded, attempts at interpretation required continual revision with new findings. By the end of the field season, the primary goal of locating the drift fence in its entirety was accomplished, however the initial investigations proved inadequate to provide a detailed interpretation.

It is the goal of this paper to describe the findings, offer limited initial interpretations, identify current research objectives, and to suggest possible future research. To emphasize the interpretive difficulties imposed by the immensity of the hunting complex, the discovery of its constituent parts and the evolution of the interpretations are presented chronologically.

A HUNTING COMPLEX EMERGES

The terrain of the Powder Spring area, referred to locally as "The Powders," is ideal for rock shelters and petroglyph sites. A series of south-facing cliffs and benches on the southern rim of the Washakie Basin are formed from steeply dipping outcrops of Eocene and Miocene rocks belonging to the Green River and Browns Park formations. The benches, which are interspersed with juniper woodlands, grasslands, and sage, are also ideal habitat for various large game animals and many plant species important to hunting and gathering populations. Surprisingly, while local collectors have been aware for decades that the area is rich in surface artifacts, neither formal knowledge nor local rumor exists of anything more remarkable than an assortment of abandoned homesteads (always credited to Butch Cassiday). The absence of known archaeological sites was confirmed by Gary DeMarcay, the BLM archaeologist. The author is familiar with local rumor, having lived for eight years in Powder Wash Camp. Actually, the residents of Powder Wash were aware of the occurrence of "odd" brush piles. But, because they did not conform to stereotypical notions of the abilities and behavior of Native Americans, these lines had been misidentified as BLM "fire lines." Regardless, it was somewhat embarrassing to be unaware of an extraordinary complex of prehistoric sites located under our noses. There is

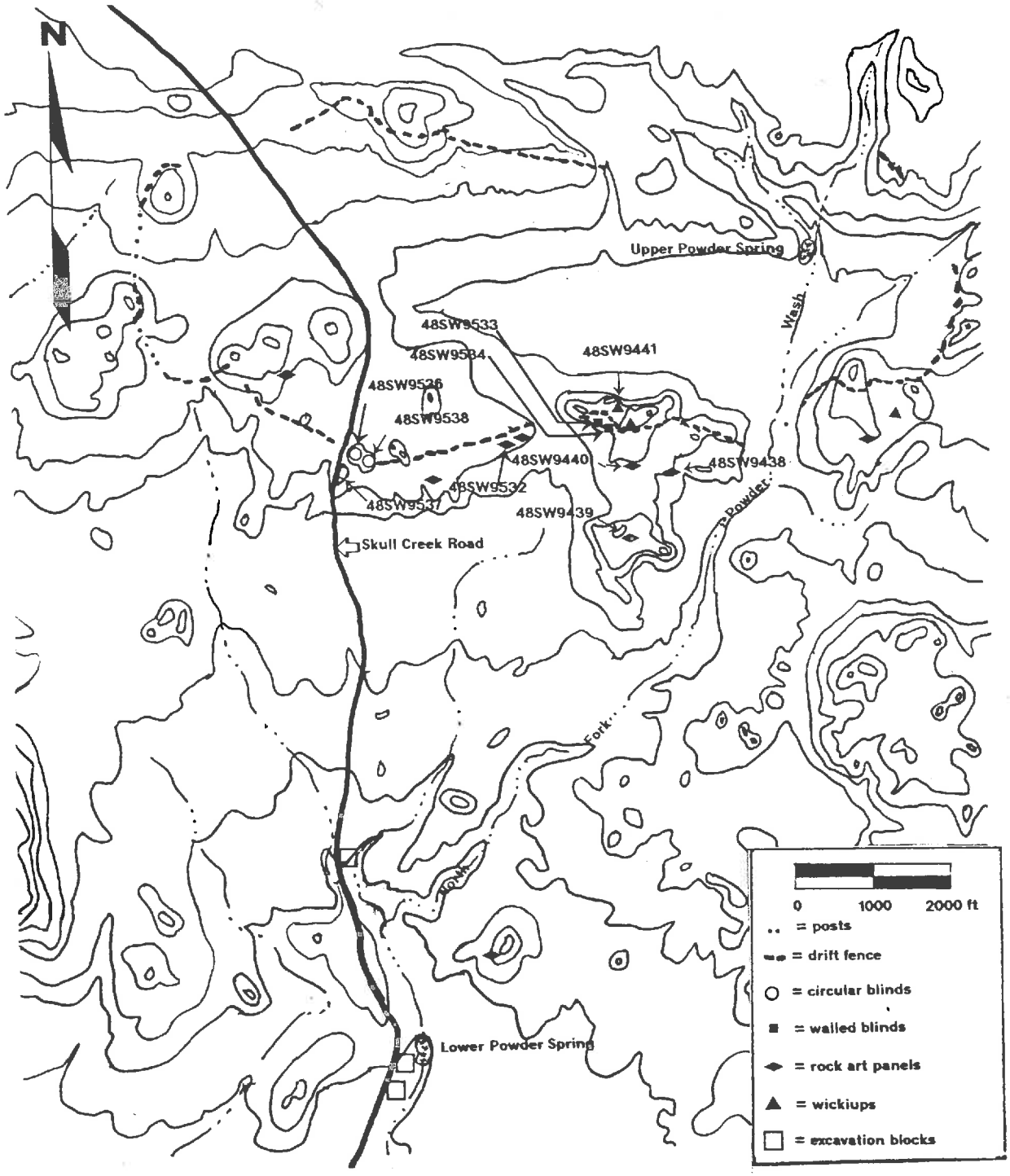

Figure 1: Map showing the Upper Powder Spring Hunting Complex near the Wyoming/Colorado border.

some solace in the fact that the complex was slow to reveal itself even to experienced archaeologists.

The occurrence of rock shelter occupations became apparent the day following the discovery of the first rock art panels. A noticeable rock

shelter located near the excavation of 48SW8594 had attracted our interest, and a quick examination revealed evidence of fire hearths. We reasoned that more prominent rock outcrops located further east could contain additional rock shelters. That evening two of us drove into an area west of Upper Powder Spring and separated to explore two opposing rock outcrops. We located three rock shelters containing panels of charcoal pictographs typical of Ute or Shoshone pictographs elsewhere in the region (Cole 1987:197-237) and two walled blinds (48SW-9533 and 48SW9534). The blinds were well hidden in deep, low, rock shelters with their openings partially walled with stacked rocks and juniper logs. We presumed, initially, that the blinds were possibly a sheepherder's cache or similar ranching-related structures. However, a close inspection produced no evidence of modern construction or function, such as nails, wire, or historic debris. The notion was abandoned after finding several charcoal pictographs and a faint, pecked trapezoidal anthropomorphic figure on the ceiling of one blind. That the structures were of prehistoric origin was clear; what was not clear was their purpose. It was speculated that they were the defensive fortifications of a party caught in hostile territory, but they were too elaborate to have been constructed in haste. Also, preferable natural terrain located nearby would have served better defensively. It also was suggested that they were offensive fortifications, but they are not located near a trail or anything of strategic significance. It seemed most likely that the structures were used in connection with hunting, but hunting blinds are usually associated with natural game routes, or with terrain and natural cover that has been artificially modified to concentrate game movement within range of an advantageous ambush location (Frison 1978:264). For the present, the purpose of the blinds was to remain a mystery.

During the following weeks, return trips continued to produce new finds, each remarkable. Three nearby, large rock outcrops contained three separate rock art panels, each with many charcoal pictographs and a few incised petroglyphs. One rock art panel contained one distinct, and three faint, red painted pictographs (48SW9439). Each of the rock art panels seemed to emphasize game animals and hunting besides other themes, including tipis (48SW-9440) and horses (48SW9438). The most remarkable find occurred during a return trip to the blinds. Less than 30 meters north of the blinds, I nearly tripped over a linear pile of juniper limbs. They had obviously been arranged into a fence-like structure that proceeded over the ridge out of view (Figure 2). The line of cut juniper varied in height from 50-100 centimeters. An apparent increase in flake density in relation to the brush line was noted, along with a complete lack of nails, staples, wire, or other historic debris. Except for the apparent use of steel axes, no other evidence for a historic origin was exhibited by the structure. Initially it was suspected that the brush line functioned similarly to prehistoric Bighorn sheep traps known elsewhere in Wyoming. After I alerted the crew to the presence of the brush line, we followed it east to the edge of the North Fork of Powder Wash where it disappeared. The excavation crew chief had been involved in research on mountain sheep traps in the Absaroka Mountains (Darlington 1984), and he suspected that the brush line represented one wing of a sheep trap. However, further investigation established that if the brush line was a trap, it was unlike the traditional types. Published sheep traps feature wing walls converging in a V-shaped fashion and culminating in a corral, or catch-pen, having high, inward-sloping walls (Darlington 1984; Frison 1978, 1991). They also are relatively small, usually less than a mile long. The Upper Powder Spring Drift Fence lacks these salient characteristics and is much larger.

With hopes of determining the function of the brush line, we returned several times to search for additional segments. It was soon evident that there was a direct relationship between the state of preservation of the brush line and its accessibility. For some time, it was thought that we had found all of the brush line. A two-track road runs north-south through a large gap in the ridge crest traced by the brush

Figure 2: A well preserved portion of the Upper Powder Spring Drift Fence.

line and it appeared that the brush line ended at the gap. That proved untrue when we located an additional half mile segment that continued west along the ridge. A large sheep shearing pen, constructed in part of juniper logs, weathered and cut identically like specimens in the brush line, is located near the gap, providing the explanation for the missing portion of the brush line. Eventually we recognized a regular pattern of repeated historic era re-use of the brush line, specifically where most accessible.

The term "brush line" was abandoned after it was discovered that a cluster of circular hunting blinds was linked to the fence (48SW-9536 and 48SW9538). Further discoveries of rock shelters and open camps suggested a function more closely related to driving and ambushing game than trapping. These characteristics established the identity of the structure as a drift fence and refuted its potential as a wing wall of a trap.

Having learned by experience not to assume that the end of the drift fence had been reached merely because it disappeared for long distances, we located another large segment west of the Skull Creek Road. A single, small rock shelter found near this segment of the drift fence containing a charcoal pictograph of a probable bighorn ram, convinced us that sheep procurement remained a possible function of the drift fence. The segment crosses a rugged, juniper-wooded terrain of jumbled boulders, crevices, and an abrupt, deep, dead-end arroyo with near vertical sides. Although it seems an ideal situation for a trap or a jump site, no evidence for one was noted. The drift fence abruptly disappears at the top of a slope, at the south edge of a broad clearing. A line of posts follows the alignment of the drift fence, suggesting that ranchers had likely removed the drift fence and constructed a barbed-wire fence in its place. It was noted however, that posts are not unconventional features of prehistoric sheep traps. Close inspection revealed an absence of wire, nails, staples, and nail or staple holes on the posts. Again, there is a complete lack of modern debris typically found in association with modern fences or animal pens. Later, another segment of the drift fence was located on the north side of the clearing. This segment aligns with the row of posts, making it apparent that the posts are not unrelated, but do belong to the drift fence.

Searching further west failed to produce additional segments of the drift line. This lead us temporarily to believe that the drift fence was confined to a single ridge extending west from the North Fork of Powder Wash and it ended where the juniper breaks gave way to the high mesas around Shell Creek. It was suspected that a similar ridge located a mile to the north might contain related archaeological sites. Our suspicions were confirmed when we discovered a twin, juniper log alignment paralleling the crest of the northern ridge in an identical fashion to the southern ridge. No evidence of blinds or rock art associated with the northern segment has been located. However, there is a much

higher density of stone artifacts in this area. Because the northern segment disappears abruptly at either end of the ridge, it was unclear whether it formed a second, separate drift fence or was an associated segment of the first. Extensive searching of likely terrain resulted in the location of the remaining segments of the drift fence, revealing it to be a single, circuitous structure that rims a topographical basin surrounding Upper Powder Spring (Figure 3).

Nearly all of the northeastern portion of the drift fence is missing. The remnants of two historic rock houses (Butch Cassiday's, of course) are located near Upper Powder Spring in the area of the missing drift fence. That the drift fence once continued north of the spring is doubtless, as evidenced by cut juniper debris and stumps. The abrupt appearance of the drift fence on the opposite side of a steep wash from the abandoned houses suggests that where easily accessible, the historic occupants had cannibalized the drift fence for building material and fire wood. There are gaps in the drift fence near the spring lacking any evidence of its route. It is likely that the gaps in the drift fence were spanned by posts like those described previously. The remnants of a homesteader's fence crosses one of the gaps. It is possible that the builder modified, or borrowed from, the original drift fence; however, the occurrence of historic fences in the gaps may be coincidental. A lone post located in the wash south of the spring probably is part of the drift fence. It aligns with two segments of the drift fence located on opposite sides of the North Fork of Powder Wash. Locating the post marked the completion of the goal to trace the entirety of the drift fence. The drift fence was recorded and assigned the Smithsonian number, 48SW9463. During our scramble to locate, map, photograph, and define the drift fence we continued to discover other equally remarkable prehistoric sites. The most impressive are discussed below.

Site 48SW9441

A few hundred feet north of sites 48SW9533 and 48SW9534 (the rock shelter blinds) and the initially recognized segment of the drift fence is a small, sandy hollow protected from westerly winds by a rock face on the spine of the ridge. At least five, and possibly six, remnants of wickiup shelters in various stages of collapse are clustered in the hollow. The wickiups are similar in construction to some excavated in the fall of 1991 at the Sand Wash Wickiup site in northwestern Colorado (Murcray and Creasman n.d.). Like the Sand Wash wickiups, the Upper Powder Spring wickiups are constructed of juniper poles arranged tipi-fashion against a live juniper tree in a semicircle on the downwind side (Figure 4, upper). The poles would have supported a covering of hides or juniper bark. The Sand Wash wickiups retained remnants of their juniper bark coverings, but the Upper Powder Spring wickiups do not. The Sand Wash wickiups contained small fire hearths inside the structures, concealed under large mounds of juniper duff and cultural debris, and

Figure 3: View of the western half of the basin from opposite the Upper Powder Spring.

Figure 4: Wickiups at 48SW9441. Upper wickiup is well preserved. Note horizontal poles on lower wickiup.

external hearths in centralized activity areas. The Upper Powder Spring wickiups lack debris mounds, although juniper duff within the shelters likely conceals at least some cultural material. One external hearth is evident on the surface near the best preserved wickiup, and one wickiup probably contains an internal hearth as evidenced by large, flat rocks detected under the duff. The same wickiup has an unusual arrangement of two horizontal poles that have become trapped by the still-growing limbs of the tree (Figure 4, lower).

Unlike the Sand Wash Wickiup site, the Upper Powder Spring Wickiup site lacks obvious associated activity areas. Few stone tools or flakes or other cultural materials are evident in the area. Perhaps the exterior activity areas are buried.

ROCK ART

There are many rock faces in the Upper Powder Spring area which are likely candidates for rock art, more than can be reasonably explored by one or two archaeologists working in their spare time. Many of these rock faces contain petroglyphs and/or pictographs, usually on the ceilings of overhangs. Our limited investigations located 15 rock art panels containing at least one petroglyph or pictograph

each, but there undoubtedly are more. The most intriguing of the rock art panels are discussed in detail below.

48SW9438

The site is a large, south-facing outcrop containing 15-20 charcoal pictographs and incised petroglyphs situated near the head of a side branch of the North Fork of Powder Wash. The predominant figures are of horses, with one outstanding pictograph of a horse and rider. Other charcoal pictographs include arrows, undeterminate animals, and anthropomorphs. One fragment of ceiling collapse has been incised to depict (probably) a pronghorn. Burned bone fragments are visible in packrat middens in rock fissures. A possible habitation associated with the rock art is at the base of the outcrop to the south. A small lithic scatter is associated with a partially exposed slab-lined hearth. Other possible hearths are located nearby, as evidenced by charcoal stains and burned stone.

48SW9439

The southernmost of the large rock art panels and farthest from the drift fence, 48SW-9439 is also a large, south-facing outcrop. It is situated on the crest of an isolated ridge overlooking a narrow, sand-filled hollow. The outcrop dips very steeply, exposing the face of the rock art panel to substantial weathering. Consequently, much of the rock art is badly faded. Well-defined figures include a red pictograph of a highly stylized horse, a large anthropomorphic figure that may be holding or lifting a smaller one, a possible dog, and an anthropomorph with horizontal stripes across the chest. There are at least three faded, unrecognizable red pictographs. At least two eroded hearths are at the base of the outcrop in the sandy hollow.

48SW9440

The site is another large, south-facing sandstone outcrop containing two panels (designated A and B) of charcoal pictographs and incised petroglyphs. It is situated nearest the drift fence, opposite a small clearing. An open camp is at the base of the outcrop in a large clearing. This is evidenced by obsidian, chert, and quartzite microflakes in ant piles, an eroded hearth, and a partially decayed pile of cut juniper limbs of unknown purpose.

The predominant pictographs are crossed lines, probably representing tipis. Panel A consists of petroglyphs incised onto three large ceiling spalls resting on the overhang floor, and several charcoal "tipis" and other indistinct charcoal figures of animals and stick-figure anthropomorphs drawn on the ceiling of the overhang. The incised figures on the slabs include a large, distinct anthropomorph similar to Fremont-style trapezoid figures (Figure 5). Another slab contains a probable pronghorn identical to one at 48SW9438 nearby (Figure 6, upper). The remaining slab contains several "tipis." Superimposed over them are historic inscriptions that read "1811" and "175000 ME." The historic inscriptions are weathered similarly to other incised glyphs, but have pronounced edges, possibly reflecting the use of metal implements. In turn, the historic inscriptions have unpatterned "honing" marks superimposed onto them, probably indicative of the production of bone or wood implements (Figure 6, lower).

Panel B consists of a charcoal pictograph of a horse, several "tipis," and some patterned "honing" marks. The remainder of the sheltered overhang area is unremarkable, containing little deposition and only limited evidence of occupation, consisting of an occasional flake or fragment of burned bone. Extensive pack rat middens located in rock fissures beneath the overhang also contain large amounts of unburned, unweathered bone.

OTHER ASSOCIATED SITES

As mentioned previously, the Upper Powder Spring Hunting Complex abounds in small sheltered overhangs and blinds containing rock art. Some of the more interesting pictographs and petroglyphs noted in these sites included an anthropomorph wielding a shield (Figure 7), a deer (possibly a white-tailed), bison, pronghorn, a bighorn ram, and either bighorns or prong-

Figure 5: Fremont-like anthropomorphs recorded at 48SW9440.

horn.

Sites 48SW9536, 48SW9537, and 48SW-9538, the cluster of circular blinds mentioned earlier, are striking features of the hunting complex. Each is constructed of flat rocks and juniper logs arranged to form a circular wall less than two feet tall (Figure 8, upper). All are situated on the tops of high, conical rock outcrops within bow or atlatl range of each other and the drift fence (Figure 8, lower). None is recognizable as an artificial structure from below or from the drift fence. The outcrops on which two of them perch are connected by the drift fence. The outcrops have rock shelters directly below the blinds that contain the remnants of walls, suggesting that they functioned as blinds. The third circular blind is very large, over twice the circumference of the others, having a diameter lengthwise of over five meters and a width of three to four meters. If contemporaneous, the blinds could have concealed over 20 prone hunters.

Two isolated wickiups were discovered in addition to the wickiups at 48SW9441. One is located beside the drift fence north of the 48SW-9440 rock art panel. It consists of three poles leaning into the east side of a small juniper tree. The other was found at the head of a draw at the edge of a heavily wooded area near the most eastern segment of the drift fence. Similar to the wickiup at 48SW9441, it has horizontally arranged poles, some of which have been trapped by living branches. A lone vertical pole is completely caught in a fork that has enveloped its tip, causing the pole to be suspended a few inches in the air by the growing tree. Unlike the other wickiups, it appears to have been constructed partially of sage. Also, the structure incorporates two juniper trees instead of the usual single tree.

Worth mention is a single stone circle found at the edge of the North Fork of Powder Wash. Probably a tipi ring, it consists of several flat stones arranged in a three to four meter diameter circle.

INTERPRETATION

The Upper Powder Spring Drift Fence is associated with features that appear to have functioned as hunting blinds. Since similar structures are known to have functioned as traps or hunting aids, hunting is the most likely explanation of its purpose. However, it will doubtless be argued that the encirclement of a spring area by a fence is more suggestive of a corral or holding pen. Perhaps even that the fence was constructed by Butch Cassiday to hold stolen horses or cattle. Certainly further investigation is required before the function of the drift fence can be determined. Presently, there is no evidence of a Euroamerican origin. For exam-

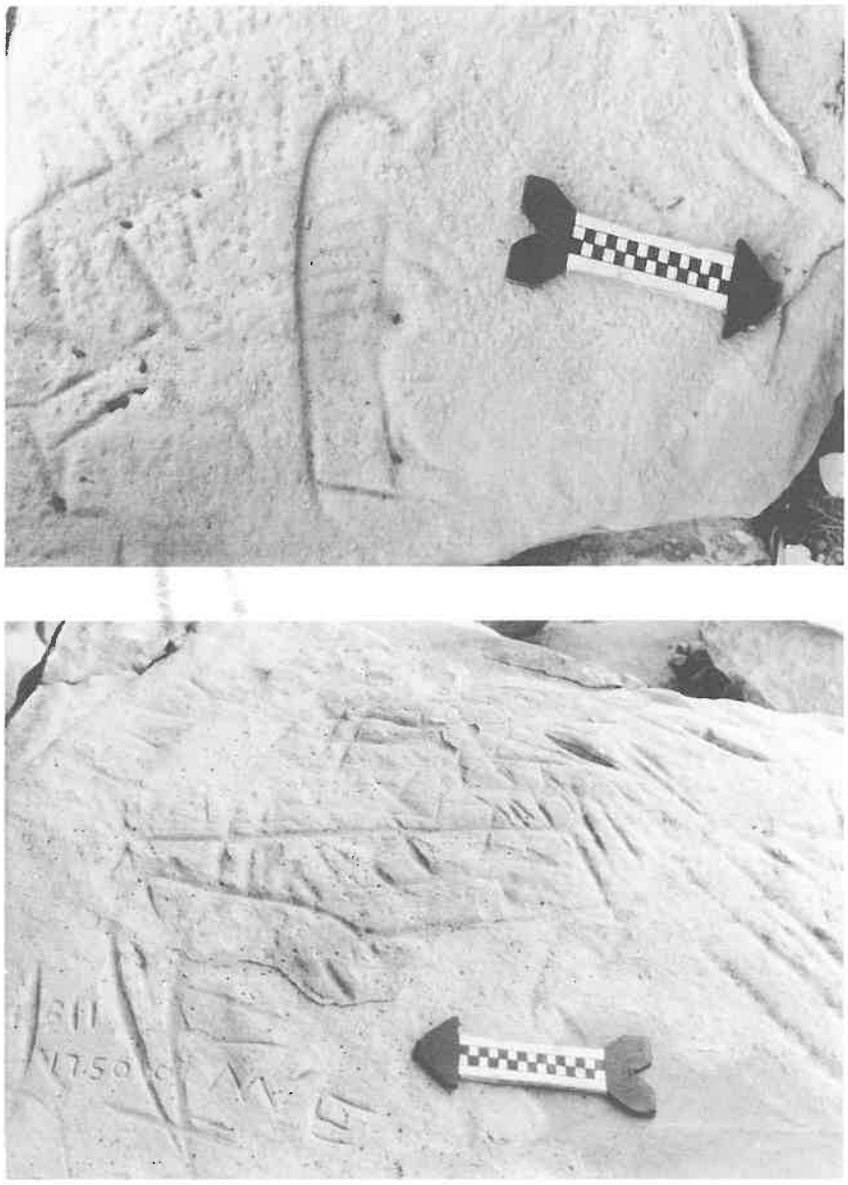

Figure 6: Incised petroglyphs at 48SW9440. Upper is pronghorn-like figure. Lower is "1811" inscription.

ple, except for the homestead fences and the sheep pens, there are no modern structures close to the drift fence, and no occurrence of historic materials in any portion of it.

Secondly, constructing the fence in a single event, or even a number of events spanning several years, would have been too labor intensive for ranchers or horse thieves. An endeavor of such magnitude would have required large numbers of laborers for which populations, both rancher and aboriginal, would have been insufficient. The alternative is that the construction occurred over many generations, a possibility only for an indigenous Native American population. It is reasonable, however, to accept the possibility that the fence was not used exclusively for hunting. It might have had multiple purposes, either contemporaneously or by a process of evolution resulting eventually in its use as a holding pen for horses, especially considering that much of the rock art depicts horses (Figure 9). Nevertheless, there are many reasons to suggest a hunting function. These reasons are addressed as follows:

1) The Upper and Lower Powder springs are the only sources of permanent water in the area. It would have been completely unnecessary to confine livestock or horses with a pen or corral to restrict them to the area. Present-day ranchers and horsemen in the area commonly allow their animals to roam free, knowing they will not stray far from water.

2) The builders of the Upper Powder Spring Drift Fence made maximal use of natural obstacles such as rock outcrops, boulders, and large trees by zigzagging the drift fence to link them. Linking these obstacles effectively reduced the labor required for cutting and hauling wood.

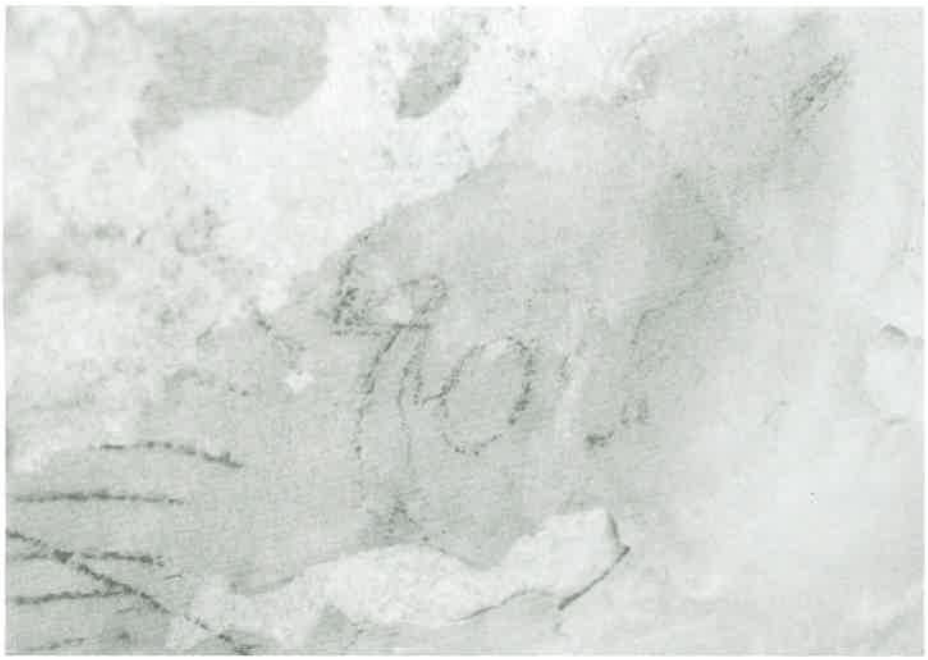

Figure 7: Shield-bearing anthropomorph at 48SW9532.

Having noted their determination at avoiding excessive labor, it was surprising to find that narrow fissures and gaps in certain low cliffs had been painstakingly fenced shut. It seems unlikely that the laborers would abandon their efforts at efficiency without good reason. The cliffs alone would prove formidable deterrents to all but the most determined horses or livestock. Being too narrow, the fissures are positively impassable. This suggests that the drift fence was intended to deter smaller and more agile animals such as bighorn sheep or pronghorn.

3) The Upper Powder Spring Hunting Complex and Drift Fence are remarkably similar to other documented hunting structures. Although constructed of rocks rather than logs, the Fort Sage Drift Fence in Nevada is particularly comparable (Pendleton and Thomas 1983). The Fort Sage Drift Fence consists of several aligned segments varying in height between 20 and 80 centimeters that extend across drainages and low, sparsely wooded hills for over a mile. It shows an apparent association with nearby satellite sites. Many of the functional and chronological interpretations of the Fort Sage Drift Fence are applicable to the Upper Powder Spring Drift Fence. For instance, although a great deal of historic-era activities, such as military and ranching operations, have occurred near the Fort Sage Drift Fence, there is a total absence of historic debris in the immediate vicinity. By the process of elimination, this fact, with other data, argues for a prehistoric origin. With evidence for an aboriginal origin, the approach used for a functional interpretation of the Fort Sage Drift Fence relied on the natural setting, the similarity to known prehistoric hunting facilities, the presumed association with temporally and functionally diagnostic artifacts, and the application of Binford's intercept strategy hunting model (Binford 1978: 169). This approach to functional and chronological interpretations is applicable to the Upper Powder Spring Drift Fence.

CHRONOLOGY

The Upper Powder Spring Drift Fence is inherently amenable to the dating of its log construction by dendrochronology. It is particularly so because it possesses all the necessary criteria for a wide variation of sample type. There are large, very old, living trees serving as posts in the fence. Some branches of these trees have been cut partially through and bent downward toward aligned trees having identically cut branches. These branches (now dead) have been cribbed together with logs to serve as segments of the drift fence. This construction strategy, which occurs almost exclusively on the northern ridge, possibly produced a living fence (Figure 10). Using dendrochronology should allow us to

Figure 8: Views of two of the hunting blinds. Upper shows the stacked rock wall at 48SW9536. Lower shows 48SW9538 from 48SW9536.

establish the approximate year that each tree was cut. Unfortunately, Archaeological Services of Western Wyoming College does not presently have the necessary resources to conduct dendrochronological dating.

There is sufficient evidence to establish a relative chronology for the Drift Fence without the advantage of dendrochronology. For instance, almost all of the logs contained in the fence and the stumps produced by their cutting appear to have been cut with metal axes. There are pictographs of horses with riders, one of which appears to be saddled. Most of the rock art is charcoal pictographs typical of early and late prehistoric and protohistoric period Shoshone and Ute (Cole 1987:197-237). The inscription "1811" that appears at 48SW9440, if in fact a date, coincides with the arrival in the region of the earliest known explorers. A band of trappers employed by Manuel Lisa reportedly passed nearby, on the eastern edge of the Red Desert in 1811 (Markoff 1981). All this suggests that the preserved portions of the Upper Powder Spring Drift Fence post-date the trade era. Because the rock art depicts only darts or arrows, never guns, and because of the absence of historic or trade era artifacts and debris in proximity to the drift fence (a tinkler was found, but well southeast of the drift fence near the isolated wickiup), the drift fence and the associated sites probably were abandoned before Euroamerican contact became commonplace and certainly before Euroamerican settlement of the area.

The earliest origin of the Upper Powder Spring Drift Fence probably is prehistoric.

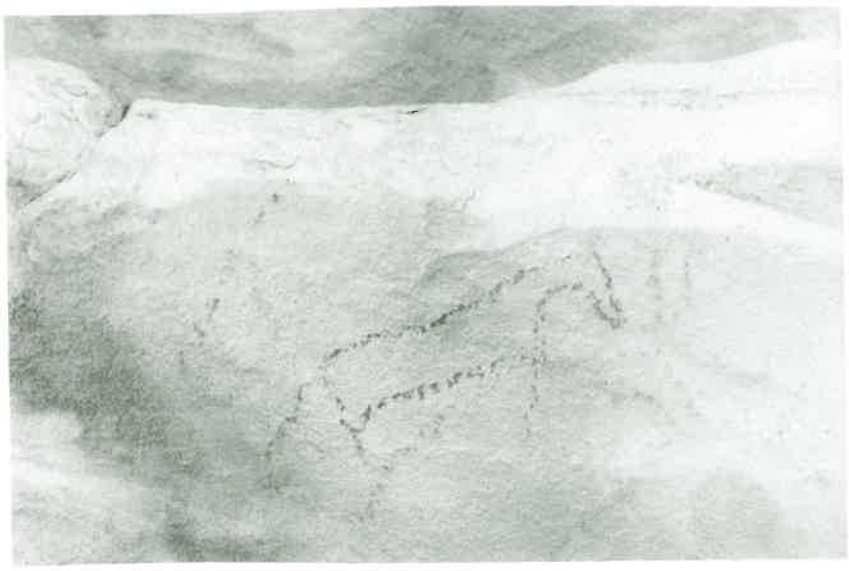

Figure 9: Typical charcoal pictograph of a horse from one of the rock art panels.

Some specimens of logs in the northernmost segment of the drift fence and nearby stumps appear to have been cut with stone axes and there is an abundance of flaked stone artifacts in the vicinity. Near the most eastern segment, there are downed trees lying end to end that appear to have been felled by burning the trunks to push them over. These trees occur in contradictory alignments to the drift fence, and so possibly represent segments of older structures. A large corner-notched projectile point typical of the Archaic period was located near the blind at 48SW9538. The rock art of the Upper Powder Spring Hunting Complex contains three distinct styles: charcoal pictographs, incised petroglyphs, and Fremont-like, pecked trapezoidal petroglyphs. The different styles probably are temporal variations, particularly if the trapezoidal anthropomorphs are of Fremont origin (Cole 1987: 134). If so, the Upper Powder Spring Hunting Complex may have been exploited by aboriginal populations for several centuries, possibly pre-dating the Fremont period.

Figure 10: Cedar tree in drift fence having partially cut limbs.

FUNCTION

The setting of the Upper Powder Spring Drift Fence is very similar to the Fort Sage Drift Fence. Both occur in ecological transition zones critical for the seasonal migration of big game. These zones are characterized by a transition from low sage communities to communities of mixed brush and trees. Both occur in settings meeting the criteria of Binford's intercept strategy hunting model which requires ready access to a game lookout, a funneling factor to increase game density temporarily and artificially, and a change of

pace factor to help the hunter in temporarily modifying the herd's ability to flee.

Artificial structures such as drift fences were used prehistorically to enhance the funneling and change of pace factors provided by natural obstacles and terrain. The Fort Sage Drift Fence, like the Upper Powder Spring Drift Fence, was a labor-intensive, high-cost enterprise. Pendleton and Thomas emphasize the association of such structures with an intercept hunting strategy:

> "Although intercept facilities need not be permanent, the relatively expensive, long-term hunting facilities - rock blinds, stone cairns, rock walls, and corrals - are almost exclusively associated with an intercept strategy" (Pendleton and Thomas 1983:25).

Pendleton and Thomas stress that elaborate hunting facilities would be found only in areas where game was seasonally abundant, predictable, and easily ambushed (Pendleton and Thomas 1983:25). The Upper Powder Spring Drift Fence occurs in such a setting.

Establishing that the Upper Powder Spring Drift Fence functioned as an aid to an intercept hunting strategy is merely the first step toward interpreting its complete function. Determining the intended prey and understanding the operation of the Drift Fence is another matter. Pendleton and Thomas narrowed the list of potential prey species for the Fort Sage Drift Fence to bighorn sheep, pronghorn, and deer. These are the most likely candidates for the Upper Powder Spring Drift Fence as well. Like Fort Sage, the habitat of the Upper Powder Spring area is well suited to these animals. Except for bighorn sheep, they are abundant there today. Bighorn sheep remains were recovered during the summer excavations establishing their presence prehistorically. Unfortunately, direct evidence of the target species, such as a kill site, has not been located. Only a single bone, a specimen collected from 48SW-9438, has been identified. The specimen is a charred acetabulum of a deer.

Unless more substantial evidence is found, determining the preferred prey is reliant on comparisons to documented drift fences and traps and their characteristics. When compared to similar structures, the preserved segments of the Upper Powder Spring Drift Fence and their counterparts alone, would have functioned satisfactorily in aiding hunters at concentrating and ambushing sheep, pronghorn, or deer. Specifically, bighorn sheep and pronghorn have been shown to be vulnerable to manipulation by such structures because of their reluctance to jump over fences and walls (Frison 1978:252, 258). It is not known how high the drift fence was originally, but it probably was not much higher than the 50-100 centimeter remnant. Because of the relatively low height of the drift fence, pronghorn seem the more likely candidate. The exact method by which the animals were herded and then ambushed or trapped cannot be determined without more evidence. Critical components of the structure, if preserved, may yet be discovered which might provide the answer.

CONCLUSIONS

The discovery of the Upper Powder Spring Hunting Complex was, to say the least, unexpected. The subsequent investigation necessarily took place on a voluntary basis since priority belonged to the excavations of the Skull Creek pipeline sites. Often this meant working alone in spite of the generous assistance provided by AS-WWC and the BLM. Consequently, the investigation is incomplete and this article merely summarizes the results of the preliminary investigation. Without further investigation the site can be described only minimally.

It can be said with confidence that the construction of the Upper Powder Spring Drift Fence was a tremendous undertaking, though undoubtedly not accomplished in a single effort. The preserved portions consist of five segments averaging 3380 feet in length each. The maintenance alone of the drift fence would have required an organized, labor-intensive effort. Evidence provided by the presumably associated rock art, the lack of historic artifacts and debris,

and physical evidence of the method of construction suggests that the preserved segments of the drift fence probably date from the late 1700s to the mid 1800s. Perhaps poorly preserved or unpreserved forms of the drift fence might have originated early in the Late Prehistoric period (1500-200 BP) as indicated by several Fremont-like petroglyphs.

The drift fence is the central feature of the Upper Powder Spring Hunting Complex, which also includes rock art panels, rock shelters, wickiups, hunting blinds, and innumerable surface scatters of flaked stone artifacts. Most of these sites are related to communal efforts at big game procurement, probably bighorn sheep, pronghorn, or deer, or a combination of all.

The preliminary investigation of the Upper Powder Spring Hunting Complex is inadequate to determine the relatedness of the sites, or provide a detailed chronological and functional interpretation. Further investigation using dendrochronology, intensive surface collection and mapping, aerial photographs, test excavations of rock shelters and potential kill loci, and pictograph dating methods could provide the necessary data. The Upper Powder Spring Hunting Complex offers an excellent opportunity for research in these and other areas. Currently, it is planned to revisit the hunting complex to view it in a winter setting. It may have had specific seasonal applications, perhaps for the interception of spring or winter migrations of herd animals. If so, the drift fence may have operated in combination with snow drifts or bogs, factors that were not apparent during the initial investigation.

Hopefully, appropriate researchers will soon be attracted. Even as the complex was being discovered, the area was being exploited by private collectors (an elderly couple were found sifting in a rock shelter blinds), and by a landscaping company engaged in the procurement of moss rock. The landscaping company has stripped entire outcrops of lichen-covered rock, resulting in the near loss of the hunting blind at 48SW9536. Action is currently being taken to curb future impacts; however, it is impossible to guarantee protection.

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Dirk Murcray
Archaeological Services
Western Wyoming College
Rock Springs, Wyoming 82901

THE GRASS CREEK SITE (48HO120): A MIDDLE ARCHAIC PERIOD HOUSEPIT, HOT SPRINGS COUNTY, WYOMING

by
David Reiss, David G. Eckles, Karin M. Guernsey, Michael McFaul, and William R. Doering

ABSTRACT

The Grass Creek (48HO120) site is a multi-component prehistoric site preserved within an alluvial terrace on Grass Creek in northcentral Wyoming. The principal component of the site is a housepit (Feature 31) with artifacts dating to the Middle Plains Archaic Period. Faunal and floral analysis suggests small mammals and certain plant taxa were used as food sources and prepared within the housepit. The lithic analysis suggests that tool maintenance or final tool production occurred within the structure.

INTRODUCTION

Site 48HO120 is a multi-component prehistoric site preserved on an alluvial terrace of Grass Creek in northcentral Wyoming (Figure 1). The site was located during a Cultural Resource Management (CRM) archaeological inventory conducted for the Wyoming Transportation Department along U. S. Highway 120 west of Thermopolis. Principal components of the site were a housepit (Feature 31, Figure 2) with associated artifacts dating to the Middle Plains Archaic Period, 4380 ± 80 years BP (Beta-28179) and a firehearth (Feature 30) with an associated activity area dating to the Late Prehistoric Period, 1610 ± 110 years BP (Beta 30466). Several other features and cultural levels were present at the site. Some of these were dated to the Middle Plains Archaic Period, 3020 ± 190 years BP (Beta 30465) and 3770 ± 140 years BP (Beta-30464). At the request of the Wyoming Highway Department, the Office of the Wyoming State Archaeologist conducted excavations at 48HO120 to mitigate potential adverse effects of road construction. However, for this paper, only the housepit feature will be discussed. For a detailed report of the other components of the site, see Reiss *et al.* (1991).

The site was originally recorded and tested in 1980 (Rom 1981) while conducting a CRM Class III cultural inventory. The site was reported as a large lithic scatter with several firehearths. Three of the firehearths were excavated, but there was not enough charcoal present for a radiocarbon date. The site was considered not eligible for the National Register of Historic Places in 1980 because it was not unique and no significant buried materials were thought to occur at the location (Rom 1981).

In 1987, personnel from the Office of the Wyoming State Archaeologist (OWSA) conducted a Class III cultural resource inventory of new right-of-way and construction areas along Wyoming Highway 120. Site 48HO120 was reevaluated as part of this project, with limited archaeological testing conducted. The results of these investigations were reported by Reiss (1987). No significant archaeological remains were recovered. However, because there was considerable alluvium on the north side of Grass Creek that might contain cultural materials archaeological monitoring was recommended to ensure that cultural resources would not be adversely affected during construction (Reiss 1987:20).

Monitoring was done in 1988. Twenty-four firehearths (Features 1-8, 11-17, and 19-27) and two larger charcoal and fired rock concentrations were uncovered (Area 2 and Feature 10). As a

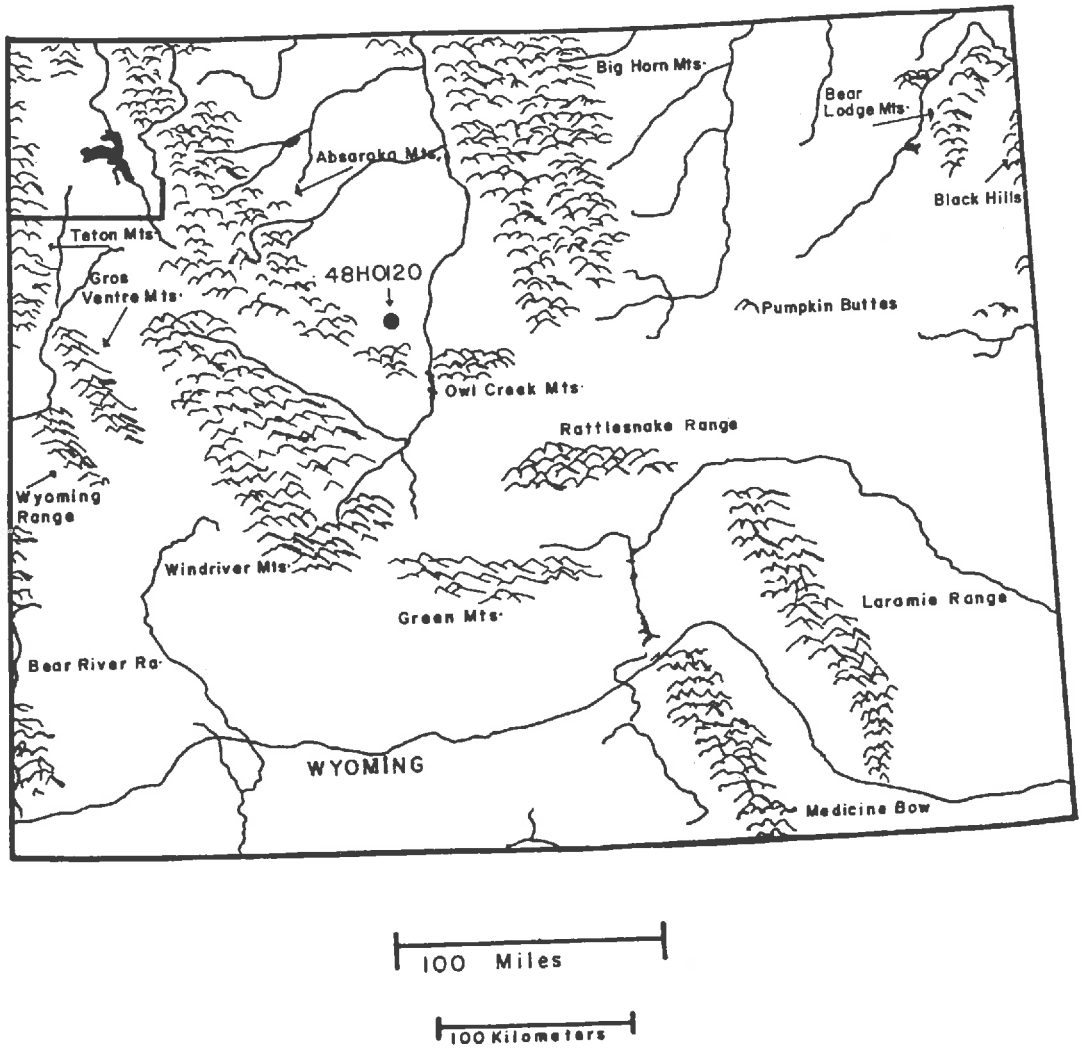


Figure 1: Map of Wyoming showing location of 48HO120 in southern Bighorn Basin.

result, construction activities were temporarily halted, and four backhoe trenches excavated into the alluvium to determine if additional undisturbed cultural materials were present. These trenches exposed several buried charcoal lenses. Later in 1988, an archaeological testing program was initiated to determine the nature and extent of the buried deposits.

The results of those investigations are discussed in detail by Reiss *et al.* (1991). Two areas of the site (Areas 1 and 2) were found to contain significant cultural remains and recommended for extensive excavations (Eckles 1988).

GEOARCHAEOLOGICAL INVESTIGATIONS

The Grass Creek site is preserved within the older of two Holocene alluvial terraces in the Grass Creek drainage approximately 41.6 kilometers northwest of Thermopolis, Wyoming and 41.6 kilometers southeast of Meeteetse, Wyoming. Grass Creek is an east-trending, perennial tributary of the Big Horn River developed upon the southwestern flank of the Absaroka Mountains. The site currently witnesses a dry, cold, mid-latitude steppe, or BSk, climate with approximately 23.9 centimeters mean annual precipitation and 6.67° C mean annual temperature (Trewartha 1957; Wyoming Water Research Center, personal communication, 1989). Soils

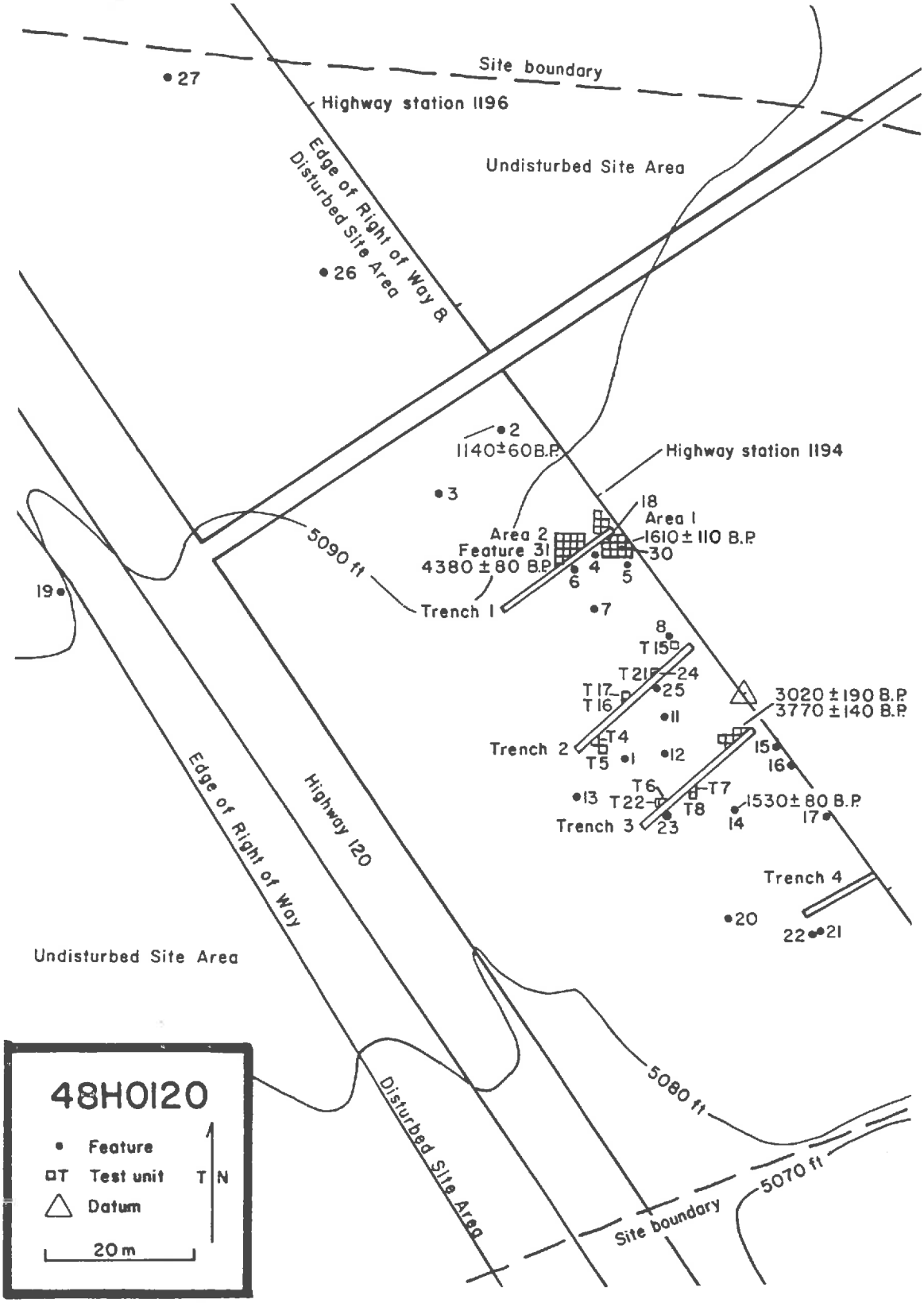


Figure 2: Map of 48HO120 showing areas excavated and proposed site boundaries.

developed upon the alluvial bottoms and terraces are mapped within a Torrifluvent-Haplargid association (Young and Singleton 1977).

Methodology

Geoarchaeologic investigations were designed to assess, first, the paleoenvironmental conditions during site occupations, second, the integrity (disturbance) of individual cultural components, and third, the relationship of the 48HO120 paleoenvironmental record to other models (Knox 1972, 1984; Mackin 1937; McFaul 1990a; Mears 1989; Reheis *et al.* 1984; Reider 1987, 1990).

The initial phase of the Grass Creek archaeological investigation included a field examination and description of the alluvial terrains in the Grass Creek drainage and the sediments, soils, and cultural materials exposed in test units, backhoe trenches, and terrace cutbanks (after Birkeland 1984; Krumbein and Sloss 1963; McFaul 1990b; Mears 1989; Reineck and Singh 1975). Soil and sediment samples were also collected during the field phase for subsequent laboratory quantification. Laboratory testing included radiocarbon dating and determination of percent carbonate (Richards 1964), organic matter (Walkley and Black 1934) and pH (Richards 1964). Detailed results of these investigations, including soil profiles, can be found in Reiss *et al.* (1991).

Results

Grass Creek is etched into the Paleocene Fort Union Formation and the Upper Cretaceous Meeteetse Formation (Love and Christiansen 1985). At least three stepped, alluvial terraces are found within this drainage, and they represent differing phases of drainage evolution. Individually, the three terraces are distinguished by the texture of their alluvium; the degree of pedogenic (soil) development; and their elevation and position (Figures 3, 4, 5). The Grass Creek site is preserved within the sediments of the mid elevation alluvial terrace.

PT1 - Pleistocene Terrace: Although there are other higher and older alluvial terraces are present in the drainage (Love and Christiansen 1985), the oldest terrace located within the Highway 120 right of way is a cobble-armored, strath terrace whose tread is approximately nine to ten meters above Grass Creek (Figures 3, 5). This terrace (PT1 = Pleistocene Terrace 1) is considered to be a Pleistocene landform based upon the presumed glaciofluvial origin of cobble-sized clasts (see Reheis *et al.* 1984), its height above Grass Creek (1548 meters), and the presence of a Stage II carbonate accumulation developed on the alluvium.

PT1 alluvium consists of rounded, very porous, cobble-sized, volcanic clasts that unconformably mantle the fine-grained Fort Union and Meeteetse Formations. The porosity of the volcanic clasts suggests they are a poor lithic resource. Soil development is highlighted by a Stage II+ accumulation of calcium carbonate (Figure 5). By comparison with similar soil carbonate accumulations on dated Pinedale deposits in West Yellowstone (see Reheis *et al.* 1984:45), the presence of the Stage II+ accumulation within PT1 alluvium suggests that the terrace is more than 20,000 yrs old. Based upon their presumed age, the PT1 sediments are considered to predate the human occupation of North America.

HT2 - Upper Holocene Terrace: Approximately two meters below the PT1, at 1546 meters elevation, is the tread of an inset, younger fill terrace (Figures 3, 4, 5). The recovery of Archaic and Late Prehistoric cultural components preserved within HT2 alluvium indicates this is a middle to late Holocene terrace (HT2). Compared to the texture of PT1 alluvium, the HT2 alluvium is much finer-grained and the Stage II+ carbonate accumulation is absent.

At least three alluvial units, distinguished by their texture, sorting, and bedding are present in the HT2 profile. Sediment Units I and III are overbank deposits (Reineck and Singh 1975) consisting of fine-grained, well-sorted, sand and silty clay laminae. Sediment Unit II consists of interbedded alluvium and lenses of matrix-supported flowage deposits (Reineck and Singh 1975).

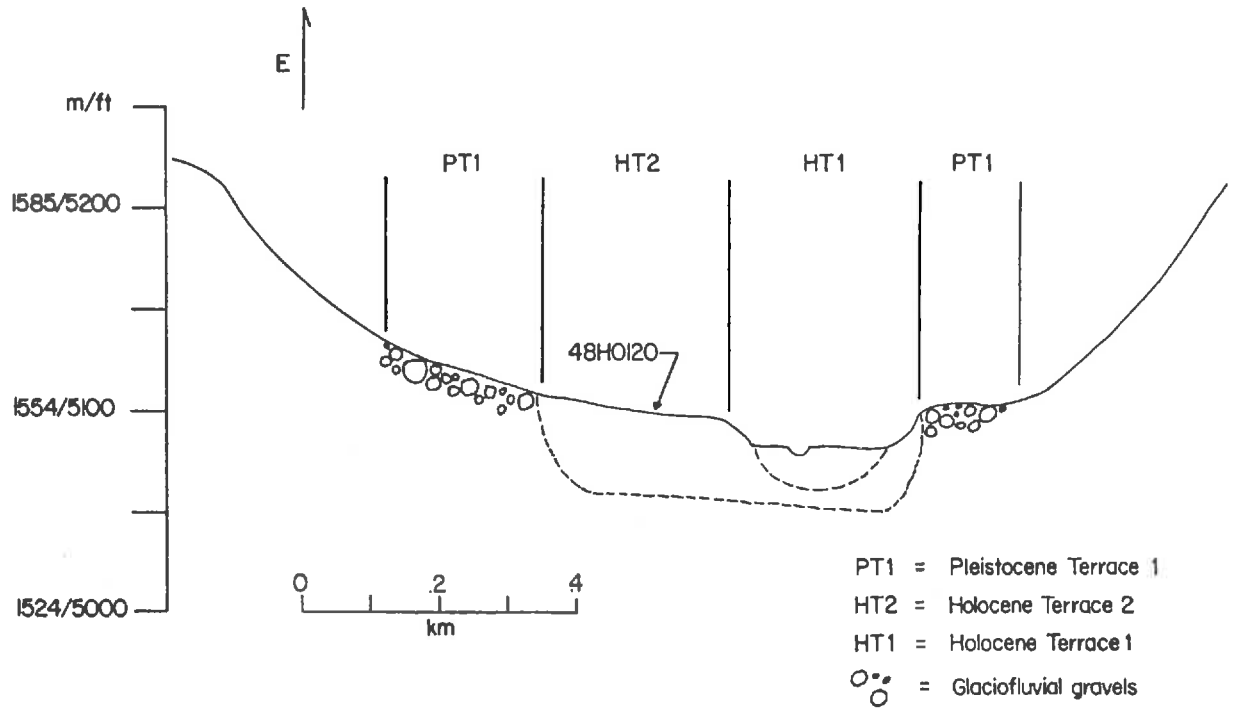


Figure 3: Cross valley geological profile through 48HO120.

Radiocarbon dates of 4380±80 yrs BP, 3770±140 yrs BP and 3020±190 yrs BP obtained from cultural materials buried at different levels within Sediment Unit I indicate that the overbank alluvial deposition began before 4380 yrs BP. Before this period of alluvial deposition, the drainage experienced a period of erosion (Reider 1987:360; Reheis *et al.* 1984). Additional radiocarbon dating of cultural materials buried near the surface of HT2 in Sediment Unit III indicates that, although interrupted (evidenced by soil formation), aggradation continued through 1610±110 yrs BP.

It is noteworthy that these radiocarbon dates were associated with cultural materials buried within laminated sediments. The presence of these low energy sedimentary deposits indicates that alluviation was relatively continuous or possibly periodic (seasonal?) during human occupation of the floodplain. The presence of fine-grained overbank alluvium in Sediment Units I and III also implies that sediment yields in the drainage were comparatively low (see Schumm 1965). These low sediment yields and periodic deposition suggest mesic climatic conditions during Sediment Unit I (after 4380 to before 3020 BP) and Sediment Unit III (after 1610 BP) deposition. Mesic climatic conditions also imply that the Grass Creek HT2 floodplain provided humans with vegetative and hydrologic resources. With regards to site integrity, the low energy deposition of overbank alluvium suggests minimal site disturbance.

However, the existence of polygonal cracks approximately 8-12 centimeters deep, filled with younger sediments through a 4380±80 yrs BP cultural feature (Backhoe Trench 1), indicates that Unit I sediments are partially disturbed (see Mears 1989; McFaul 1979 for discussion of polygonal cracking). Similar polygonal cracks develop in clay-rich sediments subject to periodic or seasonal desiccation (Birkeland and Larson 1989:534) and freeze-thaw (see Mears 1989). It is interesting to *speculate*, since polygonal cracking occurs under comparatively stressful environmental conditions (i.e., desiccation, freeze/thaw), that these conditions may have influenced human lifestyles, e.g., housepit con-

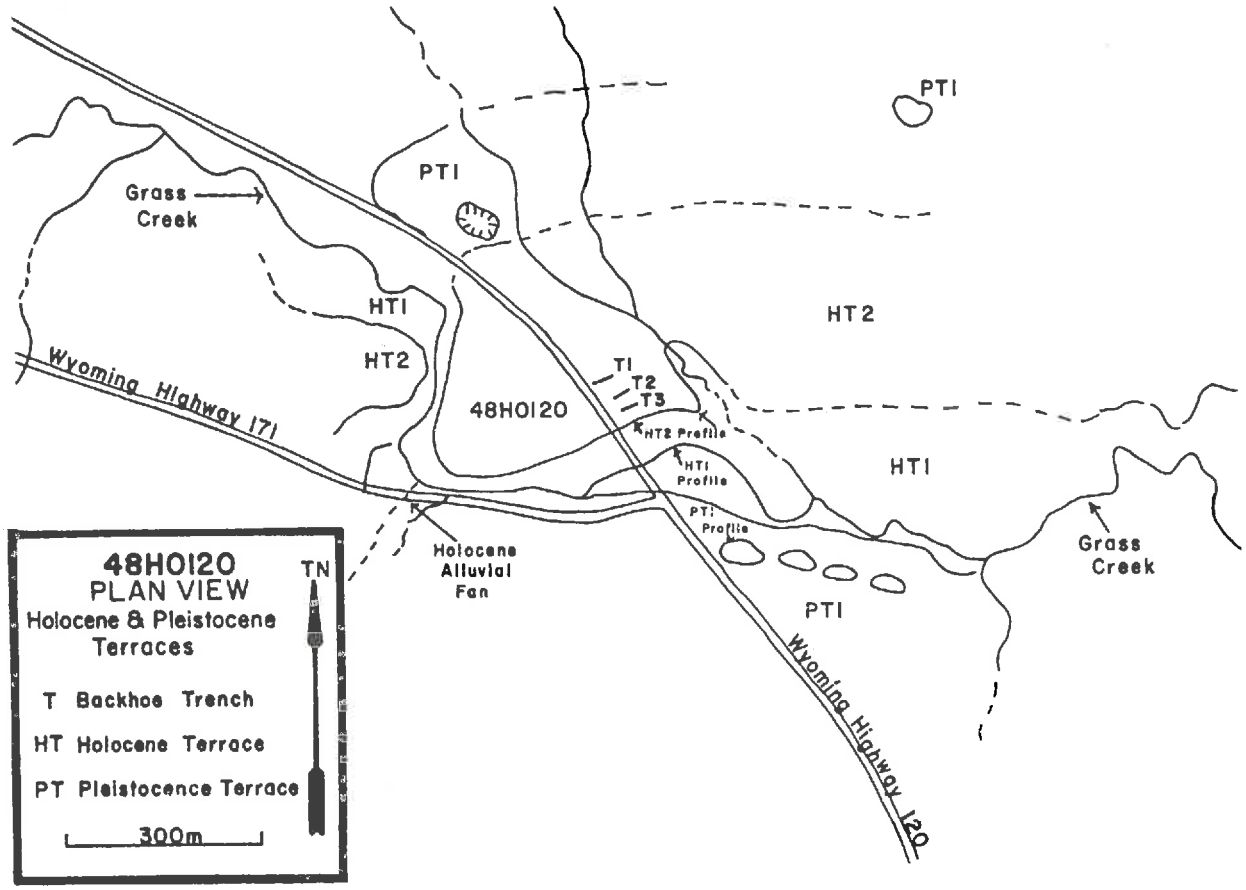


Figure 4: Geological map of vicinity of 48HO120.

struction.

The existence of conditions that favor cracking also implies that the circular, dark-colored cultural feature in Backhoe Trench 1 could have resulted from natural (i.e., ponding) rather than human origin. However, the recovery of 182 lithic artifacts within the feature boundaries suggests this is a cultural feature and that the cracking occurred after abandonment (i.e., perhaps the pit depression collected water).

Following Sediment Unit I deposition, there was a break in alluviation of sufficient duration to allow at least limited soil development on the HT2 floodplain. Soil development during this alluvial hiatus is weak (Birkeland 1984:16) and characterized by structural horizons and minimal accumulations of clay and calcium carbonate. Radiocarbon dating of cultural materials preserved in Sediment Unit I alluvium beneath the buried soil horizon (Backhoe Trench 3) indicates that this alluvial hiatus or soil-forming interval occurred after 3020$\pm$190 yrs BP. In turn, this paleosol is mantled by Sediment Unit II alluvium. Sediment Unit II alluvium is characterized by interbedded, poorly-sorted, coarse-grained sediments and lenses of matrix-supported gravels. This increase in clast size and the presence of matrix-supported gravel lenses indicates a high-energy depositional regime. This increase in energy suggests that, if present, cultural materials buried within Sediment Unit II are less likely to be *in situ*.

The presence of flowage deposits indicates an increase in sediment availability (yield) within the Grass Creek drainage. This increase in sediment yield may correspond to a decrease in hillslope vegetation in response to xeric climatic conditions (Knox 1972, 1984; Bull and Schick 1979; Schumm 1965:786, Figure 3). Radiocarbon dating of cultural materials associated with

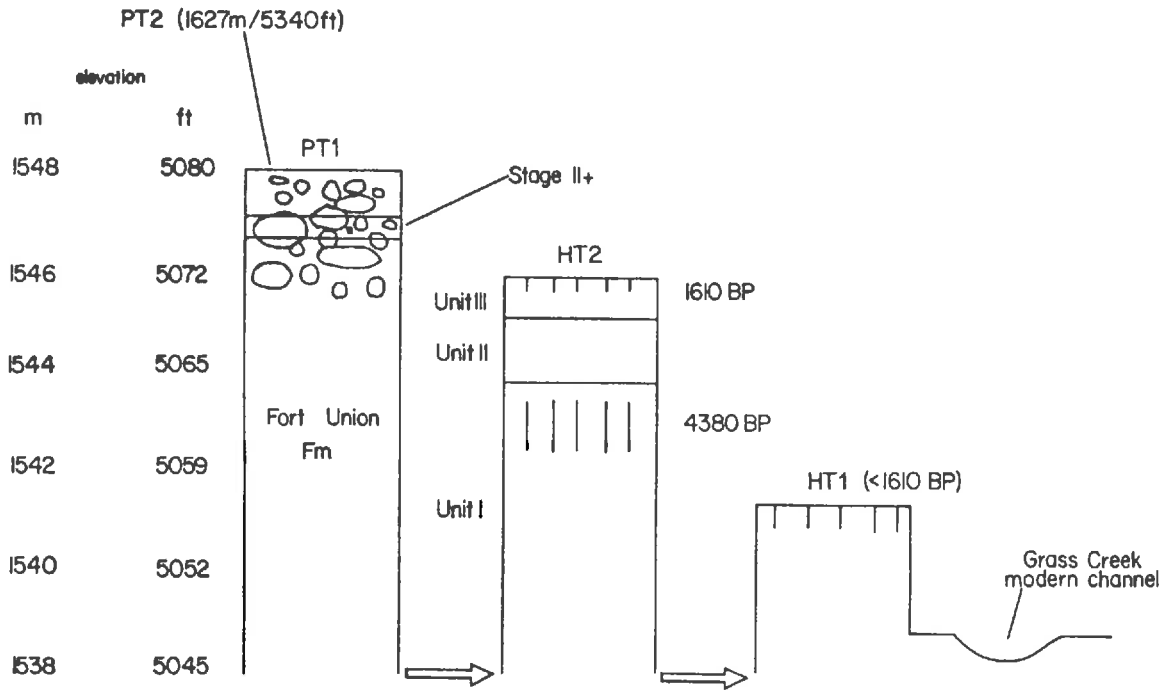


Figure 5: Schematic representation of terrace sequence at 48HO120.

Sediment Units I and III brackets this proposed xeric climatic event between $<3020\pm190$ yrs BP and $>1610\pm110$ yrs BP. The absence of cultural materials within sediments deposited during this proposed event implies that the area was less attractive to humans, possibly because of either a decrease in vegetative and hydrologic resources or floodplain instability.

The magnitude of this climatic change may have been less than the range (decrease of 5.8 centimeters in mean annual precipitation and an increase of 0.6°C mean annual temperature) proposed for other late Holocene xeric intervals in southcentral Wyoming (McFaul 1989, 1990a). This decrease in the magnitude of the xeric event is based upon the observations that stream incision did not occur and that alluviation continued during this time.

The presence of fine-grained, overbank alluvium of Sediment Unit III indicates a decrease in energy levels before 1610 ± 110 yrs BP. This change in the mode of alluvial deposition from flowage to overbank is thought to be the result of an increase in vegetation and a subsequent decrease in sediment availability (Knox 1972, 1984; Bull and Schick 1979). Considering that the long term result of an increase in precipitation is a decrease in sediment availability (Schumm 1965:786, Figure 3), it is suggested that Sediment Unit III overbank alluviation indicates a return to mesic climatic conditions. Radiocarbon dating of cultural materials buried within Sediment Unit III sediments documents that overbank alluviation ended after 1610 ± 190 yrs BP.

The soil developed upon Sediment Unit III also indicates that a period of soil formation occurred after 1610 yrs BP. This soil is characterized by weak structural development and minor accumulations of clay and calcium carbonate. The fine-grained nature of the overbank alluvium and the weakness of soil development suggest that Sediment Unit III artifact integrities are high.

HT1 - Lower Holocene Terrace: Dated cultural material in Sediment Unit III near the surface of HT2 indicates that after 1610 yrs BP,

Grass Creek entrenched its channel approximately 7.5 meters. Channel entrenchment is commonly considered to result from lowering of water tables (Karlstrom and Karlstrom 1986) in response to xeric climatic conditions. Entrenchment was followed by renewed alluviation and the deposition of a fill terrace (HT1) within the new channel. Similar to the HT2 fine-grained alluvial deposits, the fine-grained alluvium in HT1 implies overbank deposition under mesic climatic conditions (Figure 3). HT1 alluvial deposition was followed by the formation of a structural soil weaker in development than the argillic soil on surface of HT2.

Paleoenvironments

The paleoenvironmental record preserved in the HT2 and HT1 soils and sediments at the Grass Creek site is meaningful. Little more than general patterns of late Holocene climate and landscape relationships have been proposed for Wyoming (Reider 1990; McFaul 1990a, 1989; Leopold and Miller 1954) and refinement of these relationships is needed (Reider 1990:357). Refinement is also needed to assess the effect that these climate and landscape relationships have had upon the archaeological record (McFaul 1989).

The radiocarbon dated Grass Creek soil and sediment record compares favorably (Table 1) with the Rocky Mountain climatic model (Benedict 1981, 1985) and the proposed eastern Wyoming terrace chronology (Leopold and Miller 1954). However, the Grass Creek interpretation differs somewhat from the cyclic Neoglacial alluvial sediment yield model of Knox (1984:35-36) and the basin process model of Reider (1990:375). The principal difference is that Grass Creek (HT2/Sediment Unit II) witnessed alluviation during a proposed xeric climatic event (<3020 yrs BP to >1610 yrs BP). The occurrence of flowage deposition during a xeric climatic event suggests that the response to climatic change is influenced by the magnitude (i.e., intensity and duration) of a given event.

The Grass Creek model also differs from Reider (1990:357) and others (Hereford 1984; Euler *et al.* 1979; Karlstrom and Karlstrom 1986) in its explanation of hillslope stability. The Grass Creek model suggests that hillslope stability corresponds to mesic climates, whereas hillslope instability corresponds to xeric climates. This is based upon the premise that comparatively fine-grained alluvium is deposited under mesic conditions and that comparatively coarse-grained, flowage sediments are deposited in the Grass Creek drainage under xeric conditions. Overall, the Grass Creek model emphasizes; first, differing rates of response (vegetative, slope stability, and sediment yield) to climatic change; second, post climatic-change equilibriums that allow soil development; and third, that the magnitude (duration and intensity) of a climatic event influences the rate of response.

AREA TWO (HOUSEPIT) EXCAVATION RESULTS

Site Area Two is located on the north side of Backhoe Trench 1 (Figure 2). Fourteen test units (1-3, 18, 23-32) were excavated in this block. The cultural component was located during the mechanical excavation of Backhoe Trench 1. Initially it appeared as a linear, dark, charcoal stain about 30 centimeters thick and about 1.30 meters below the bladed surface in the north wall of the trench. It was approximately 1.5 meters long. The sediments overlying the charcoal stain were removed to within a few centimeters above the stain with the backhoe. Excavations then revealed the presence of a housepit (Feature 31; Figure 6) with associated cultural artifacts. Charcoal recovered from the housepit fill in excavation Unit 1 was radiocarbon dated to 4380 ± 80 yrs BP, the Middle Plains Archaic Period. The soils are the fine-grained, overbank sandy and silty clays of Sediment Unit I.

Feature 31

The exact maximum measurements of Feature 31 (the housepit) could not be established because Backhoe Trench 1 cut through the southern portion of the feature (Figure 6) and because the eastern portion of the feature had

YEAR BP	GEOMORPHIC EVENTS	CLIMATIC INTERPRETATION	BENEDICT (1981)
0	Soil 100 Fine grained Alluvial Deposition 350?	Xeric Mesic	100 Mesic "Arapaho Peak" 350
1000	Entrenchment after 1612 HT2-Unit III Fine grained alluvial deposition	Xeric Mesic	Xeric 900 Mesic "Audobon"
2000	HT2-Unit II Coarse grained alluvial deposition	Xeric	2400
3000	<3020 HT2-Unit 1 fine grained alluvial deposition >3370	Mesic	2970 Mesic "Late Triple Lakes" 3340
4000	4380 HT2-Unit I alluvial deposition		4000 Mesic "Early Triple Lakes"
5000	5000		5000

Table 1: Paleoenvironmental record and climatic interpretation, Grass Creek site, 48HO120.

been erosionally truncated. The lower charcoal lens within the fine-grained Unit I sediments is the southernmost remnant of Feature 31. The eastern edge of this has been truncated by the deposition of the coarse-grained flowage deposits of sediment Unit II.

Within the excavation block, Feature 31 measured 3.75 meters (north-south) by 3.0 meters (east-west). A profile of the north wall of the excavation block (Units 3, 23, and 18 - Figure 7) and the west wall of Units 1, 2, and 18 (Figure 7) suggested the housepit extended slightly to the north of the excavation block. Given that only a thin lens of charcoal was visible in the south wall of the trench, the edge of the feature must have been in the backhoe trench. Thus, reconstructed north-south dimensions must have been at least four meters. East-west dimensions are speculative, as is the overall shape of the structure. A generally circular or oval-shape can be assumed. However, no edge of either the bottom of the pit or the top was detected during the excavation of Units 31 and 32, indicating that a significant portion of the housepit may have been removed by the deposition of the higher-energy flowage deposits of Sediment Unit II.

An east-west profile of the structure along the south wall of Units 2, 24, and 27 shows that overall configuration of the structure is that of a saucer or basin-shaped depression (Figure 7), with a maximum depth of approximately 20 centimeters. The housepit had been excavated into a tan laminated sandy clay, and the feature fill was overlain by a tan sand. Fill inside the pit was a sandy clay, with extensive charcoal staining. The fill of the housepit was bedded or laminated suggesting that much of the fill may have been washed back into the pit after abandonment. Some rodent disturbance was appar-

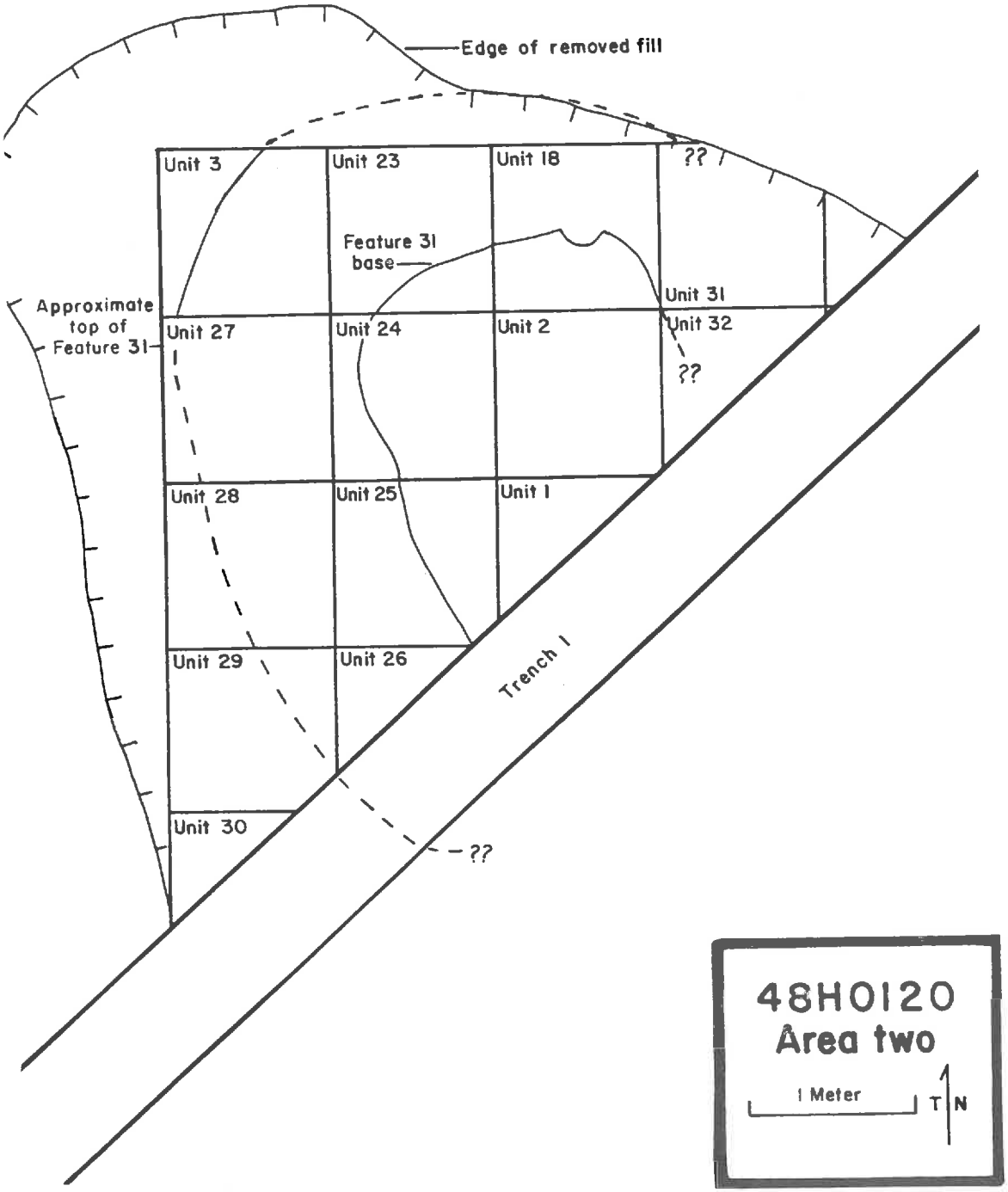
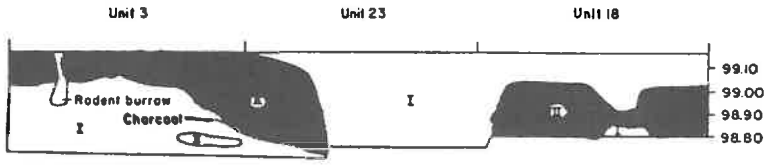


Figure 6: Map showing distribution of test units at Excavation Area Two, 48HO120.

ent.

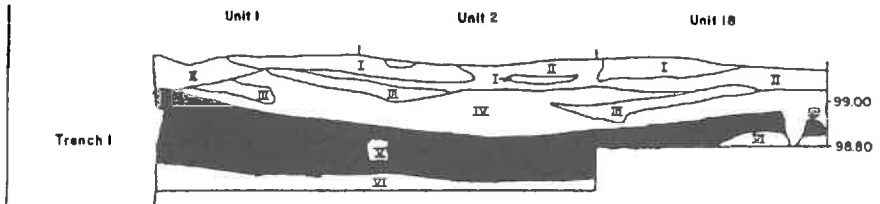
No post holes or interior hearths were observed. However, the profile of the north wall of the excavation block shows a 75 centimeter gap in the charcoal staining (Figure 7). This may represent an opening into the structure or a post-occupational disturbance such as a small water channel. This disturbance does not continue south into the structure as one might expect from post-occupational disturbance. If



NORTH WALL
AREA TWO

50 cm

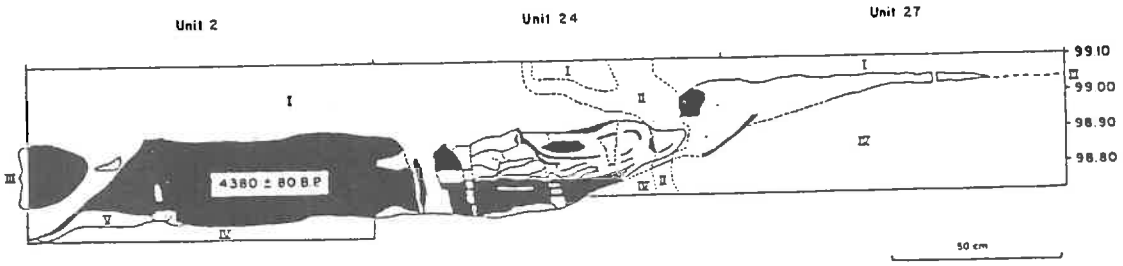
I Tan sandy clay (all strata are within Sediment I).
II Dark charcoal stained sandy clay (feature 31).



WEST WALL
AREA TWO

50 cm

I Tan sand.
II Tan sandy clay.
III Tan sandy clay with small flecks of charcoal.
IV Tan sandy clay with more charcoal staining.
V Dark charcoal stained sand clay with banding.
VI Tan sandy clay with hard compaction.



SOUTH WALL
AREA TWO

I Tan sand.
II Bioturbation disturbance.
III Dark charcoal stained sandy clay (feature 31).
IV Tan sandy clay.

Figure 7: Soil profiles from Feature 31, 48HO120.

this was an entryway, one might expect fill to be similar to the housepit. This is not the case, and the nature of this subfeature remains unknown.

Lithic Artifacts

One hundred eighty-two lithic artifacts were recovered from Area Two (Table 2). Most (72%) of these were small tertiary flakes that may have been produced by tool resharpening or from final tool production stages. Little initial tool production occurred within the housepit, as no cores and only a few primary reduction flakes were recovered. Most (51%) of the raw materials were cherts, followed by quartzites (25%). All lithic raw materials appear local in origin.

Stone tools recovered include one white chert biface or point tip (48HO120-113), four quartzite edge-ground cobbles (48HO120-11, 19, 20, and 53) and one quartzite chopper (48HO120-128). The biface or point tip shows fine pressure flaking on both sides, and is broken at the proximal end. The firecracked, edge-ground cobbles show signs of battering and wear along one edge. The chopper is a fire-cracked quartzite cobble that shows signs of battering on one end.

Several fragments of ground stone were also found (Table 2). These include one complete sandstone metate (48HO120-8). It measures 40 by 24 by 0.5 centimeters. Only one side has been ground, and the slab has been shaped along the edges. Artifact 48HO120-7 is a sandstone metate fragment measuring 14.5 by 11.0 by 1.5 centimeters. It is ground on one side, and the edges appear to have been shaped. It is slightly reddened as though from being burned. Artifacts 48HO120-9 and 18 are small fragments of sandstone ground stone. Both are slightly ground on one side. 48HO120-18 is the same color and texture as the metate fragment 48HO-120-7 and may have been part of the original metate.

Thirty-six burned clay fragments were recovered from Feature 31 (Table 2). Although their exact nature is unknown, Waitkus *et al.* (1988) have suggested that artifacts such as these may be remains of mud chinking used on the superstructure of the housepit.

Faunal Remains

Over twelve hundred faunal specimens were recovered from Feature 31 (Table 3). In general, most of these are small and fragmented, with the average size being 13.0 by 4.0 millimeters wide. This made species identification difficult. Rodents dominate the faunal assemblage (91%). Several other species are present including small mammals, cottontail (*Sylvilagus* sp.), pronghorn (*Antilocapra americana*), ground squirrel (*Spermophilus* sp.), vole (*Microtus* sp.), medium-sized mammal, small medium-sized mammal, medium large-sized mammal, and gastropods. Only 27% of the assemblage is burned, and none show any signs of butchering. About one-third of the rodent bone is burned, suggesting that is it not intrusive. It was not possible to determine the seasonality of the occupation.

Bone element distribution shows some clear patterning (Table 3). Most elements (98%) are long bone shafts. For the larger-sized mammals such as pronghorn and medium large sized mammals, only a few rib fragments and tarsals were recovered. Similarly, among the smaller-sized mammals (rabbits and rodents), only a few bone elements other than long bones are present.

The pattern of large quantities of small mammal bone in Archaic-age housepits has been noted elsewhere. Eakin concluded from the Split Rock Ranch site faunal assemblage that:

> ". . . there is a disproportionate representation of elements; that is, few elements representing the larger animals and more elements representing the smaller animals. In the case of the large animals, this pattern could relate to the size of the animal and the overall food content of the carcass. If the large animals were being killed away from the site, only select parts containing certain bones may have been transported to the site. Similarly, if complete large animals were brought back (as is possibly the case with at least one deer), special use areas outside the excavated area may have been used during processing (Binford 1983). This may explain the low number of identifiable remains of all the larger animals, except the deer

MATERIAL TYPE	PRI	SEC	TER	SHA	GRS	BIF	EDC	BC	CHO	TOT
Chert		1	92			1				94
Quartzite	1	1	36	1			4		1	42
Argillite			2							2
Siltstone			2							2
Sandstone					4					4
Clay								36		36
TOTAL	1	2	132	1	4	1	4	36	1	180

Table 2: Summary of lithics from Area two, 48HO120 including artifacts from the features. (PRI-Primary flake, SEC-Secondary, TER-Tertiary, SHA-Shatter, GRS-Ground stone, BIF-Biface, EDC-Edge-worked cobble, BC-Burned clay, CHO-Chopper, TOT-Total).

which appears to have been cracked open for marrow in Excavation Area 7."

"The smaller animals, specifically the two types of rabbit, constitute a high percentage of the identifiable sample. The high incidence of these taxa may reflect, not only their smaller and thus more transportable body size (which may tend to increase their overall number of skeletal elements in the sample), but may also reflect a much different treatment of the carcass after being returned to camp. Rabbits (and the other smaller animals) possess at most a few pounds of edible flesh and do not yield large amounts of marrow or renderable fatty tissue, as do the larger animals. The smaller overall carcass size may not have warranted special treatment involving a separate processing area. The reduced amount of space and energy required to process these smaller animals may have permitted them to be processed and cooked within the actual living area. This could have resulted in the incorporation of these remains into the local deposits which later filled the features."

"Another pattern at the site which favors this interpretation is seen in the high incidence of rabbit cranial parts, articular ends and shafts of the major long bones and some lower leg elements. From the element frequencies, it appears as if entire carcasses were processed in close proximity to the features and that processing involved the cooking of flesh and retrieval of marrow or fats from the long bones. The lack of more than a few rabbit vertebrae in the total assemblage, however, suggests that these parts were used in some ultimately destructive process or that some unknown activity carried them outside the excavated area."

"Related to this is the large percentage of "small mammal" bone fragments which the analyst feels can be attributed to rabbit. Many of these fragments consisted of the shaft walls of long bones. These elements may have been used to some extent in the production of grease from rabbit or any of the smaller mammals or birds recovered from the site . . ." (Eakin 1987:328-330).

TAXON	BURNED	UNBURNED	TOTAL
Rodent	309	807	1116
Ground squirrel (*Spermophilus* sp.)		2	2
Cottontail (*Sylvilagus* sp.)	1	6	7
Vole (*Microtus* sp.)		1	1
Medium-sized mammal		4	4
Small mammal	16	52	68
Small-Med-mammal		1	1
Pronghorn (*Antilocapra americana*)		1	1
Med-Large-mammal	7		7
Gastropod		20	20
Total	333	894	1227

TAXON	CRANIAL	RIB/ VERT	LONG BONE	LOWER LIMB	SHELL	TOTAL
Pronghorn (*Antilocapra americana*)				1		1
Rodent			1116			1116
Ground squirrel (*Spermophilus* sp.)			1	1		2
Vole (*Microtus* sp.)			1			1
Med-sized mammal			4			4
Small mammal	2		66			68
Cottontail (*Sylvilagus* sp.)		1	4	2		7
Small-Med-mammal			1			1
Med-Large-mammal		3	4			7
Gastropod					20	20
TOTAL	2	4	1197	4	20	1227

Table 3: Upper: Summary of faunal materials from Area Two, 48HO120. Lower: Bone element distributions, Area Two, 48HO120.

In conclusion, the faunal assemblage from 48HO120 appears to be similar to the Split Rock Ranch assemblage in that smaller sized mammals dominate the assemblage and that only a few elements of the larger sized mammals (e.g., pronghorn) occur. The absence of many skeletal elements of the large animals suggests that only part of the carcass was brought to the residential area or that processing was done elsewhere. However, the faunal assemblage at 48HO120 does present some differences from the Split Rock Ranch site. The Area Two assemblage is dominated by rodents, and there is a paucity of other elements besides long bones represented. The Split Rock Ranch faunal assemblage is dominated by small mammals (e.g., rabbits) and has a larger representation of other bone elements besides long bones. This suggests that, at 48HO120, there was a differential treatment of rodents as compared to small mammals such as rabbits or that some specialized activity was occurring which included only the use of long

bones. There is some evidence that many bones were ground on a metate, as there is a large cluster of bone fragments located around two of the metates (48HO120-7, 8) found in Feature 31 (see below).

Floral Remains

Feature fill samples were taken and analyzed from seven different excavation units within Feature 31. One other sample was taken from a unit less than one meter away from Feature 31. Two hundred forty-six charred seeds and plant remains, other than wood charcoal, were recovered from Area Two. These items represent approximately 16 taxa (Table 4). Seven taxa were identified to plant family or genus (Table 4), and approximately nine taxa remain unidentified. The wood charcoal retrieved represents four additional plant types.

Forty-two seeds and seed fragments were recovered from samples from Unit 23 on the floor of Feature 31. Thirty-two seeds and seed fragments were identified as *Chenopodium* sp. and three as *Descurainia* sp. or *Sisymbrium* sp. Two seed fragments are *Opuntia* sp., and one is a *Scirpus* sp. Four seeds and fragments remain unidentified. The wood charcoal was classified as *Populus* sp. or *Salix* sp., and an additional unidentified hardwood species. One hundred and thirty plant remains were salvaged from six fill samples taken from test Unit 18. One hundred twenty-two seeds and seed fragments were categorized as *Chenopodium* sp. Two seeds and 45 fragments belong in the *Opuntia* genus. Fourteen seeds are of unidentified taxa. The wood charcoal recovered is *Artemisia* sp., coniferous wood, an unidentified hardwood, and *Populus* sp. or *Salix* sp.

Two samples from Unit 31 contained ten items. One seed was identified as a Chenopodiaceae. Seven *Chenopodium* seeds and fragments and two seeds of unknown taxon were retrieved. The wood charcoal is an unidentified hardwood and *Populus* sp. or *Salix* sp. The sample from Unit 32 contained nine floral remains. One seed was identified as a possible *Amaranthus* sp. (pigweed or amaranth). Most of the amaranth species are weedy annuals able to produce large amounts of seeds. Five of the six amaranth species occurring in Wyoming prefer disturbed habitat (Dorn 1988). The other species is found around salt marshes. Amaranth was an important food item among populations from North to South America in prehistoric times (Kindscher 1987). In the Plains, pigweed was eaten as a potherb in the spring. Later in the year, the seeds were cooked or ground into meal (Blankenship 1905; Harrington 1967). The seeds ripen during the fall. Two seed fragments were identified as *Opuntia* sp., while four seeds and fragments remained unidentified. The wood charcoal is *Populus* sp. or *Salix* sp. and an unidentified hardwood species.

Three samples from Unit 24 produced 12 plant items. One may be an *Atriplex confertifolia* (shadscale) leaf. Four seeds and five seed fragments were grouped into the *Chenopodium* genus. Two seeds are unidentified to taxa. The wood charcoal is *Populus* sp. or *Salix* sp., *Artemisia* sp., and an unidentified hardwood. The sample from Unit 27 was obtained outside, but close (less than one meter) to Feature 31. It contained one *Chenopodium* seed and two possible seeds of unknown origin. The wood charcoal was identified as *Populus* sp. or *Salix* sp.

Four samples from Unit 25 within Feature 31 yielded 40 seeds and seed fragments. One is an unspecified Chenopodiaceae. Thirty-one were identified as *Chenopodium* seeds and seed fragments. Four are *Opuntia* sp. seed fragments. In addition, one seed, two seed fragments, and one "tentative" seed, all of unknown taxa, were also recovered. The wood charcoal present is *Artemisia* sp., coniferous wood (in this case, definitely not *Juniperus* sp.), as well as *Salix* sp. or *Populus* sp., and an unknown hardwood. Unit 21 produced no charred seeds. Only wood charcoal of the *Populus* sp. or *Salix* sp. type were recovered.

The eleven identified plant taxa recovered in Area Two are all known to have useful properties either as food, medicine, and other needs (Table 4). The floral remains found associated

TAXON	EDIBLE PARTS	OTHER USES	PERCENT OF TAXA IN 8 UNITS	NO. OF UNITS WITH TAXA	HABITAT TYPE
Amaranthus ? sp.	Young plants, seeds		12.5%	1	Disturbed
Atriplex confertifolia (?)	Seeds	Leaves are a salty spice, firewood	12.5%	1	Sagebrush steppe
Chenopodiaceae	Young plants, seeds	Entire plant in hearth const.	25.0%	2	Sagebrush steppe
Chenopodium sp.	Young plants, seeds	Entire plant in hearth const.	75.0%	6	Sagebrush steppe
Descurainia sp./*Sisymbrium* sp.	Young plants, seeds		12.5%	1	Disturbed
Opuntia sp.	Stem segments, fruit, seeds		37.5%	3	Sagebrush steppe
Scirpus sp.	Roots, seeds	Basketry, mats	12.5%	1	Riparian
Wood Charcoal Taxa:					
Artemisia sp.	Seeds	Firewood, medicine, ceremonial	37.5%	3	Sagebrush steppe
Coniferous Wood	Seeds, cambium, young shoots	Firewood, medicine, crafts, basketry	25.0%	2	Upland
Populus sp./*Salix* sp.		Firewood	100.0%	8	Riparian
Unknown Hardwood		Firewood	75.0%	6	Riparian or Upland

Table 4: Identified plant taxa from Area Two, 48HO120.

with Feature 31 may reflect exploitation of five different plant communities (Table 4). The season of seed maturation of five plant taxa (*Descurainia* or *Sisymbrium*, *Opuntia*, *Chenopodium*, *Scirpus*, and *Amaranthus*) can be used to infer the time of operation of Feature 31. This housepit could have been in use from about mid summer to about mid fall. The data may indicate two separate occasions of occupancy, once during mid to late summer, based on the *Opuntia* seeds, and again during early to mid fall, based on the possible amaranth seed. It is unusual to find both plant taxa in seed simultaneously. However, there is always the possibility that the seeds recovered are remnants of processed stored goods therefore, the seasonality of the site is questionable.

Artifact Distributions

The vertical distribution of artifacts recovered *in situ* from Area Two suggests one contiguous cultural level between the site elevations of 98.90 and 98.70 meters. Although data from the floral analysis suggest that there may have been more than one episode of utilization, this cannot be detected from the artifact distribution. This distribution also suggests a concentration of artifacts in the lowest portion of the housepit. Artifacts are also concentrated within the housepit or just on the outside edge (Figure 8) with greatly decreased frequencies on the exterior of the structure. The distribution of all artifacts recovered (Figure 8) indicates a large concentration of faunal remains (n = 1125) around the metates in Units 2 and 18 and near the bottom of the housepit. Most of these are rodent and small mammal long bones. In addition, 183 charred seeds were recovered from Unit 18. As mentioned above, this suggests these faunal remains were being ground. The charred seeds suggest

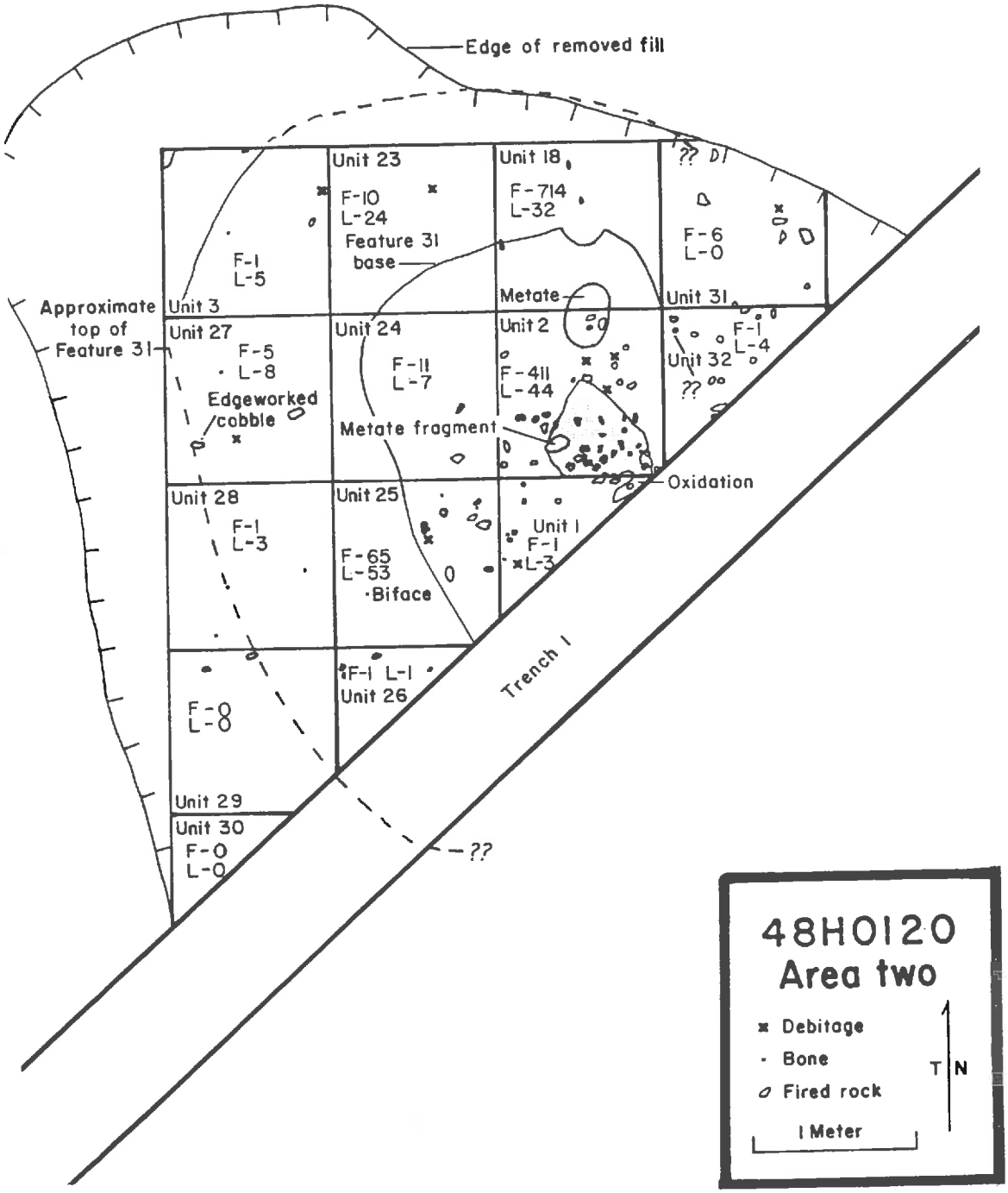


Figure 8: Plan view of *in situ* artifacts from Area Two with number of lithics (L) and faunal remains (F) from each unit.

that they may have been processed in this area as well. Artifact concentrations around the metates suggest that these artifacts may be *in situ*. Artifacts at higher elevations may have been washed into the feature with the other alluvial deposits after abandonment.

Comparisons of Feature 31 with other housepits

from Wyoming

Waitkus *et al.* (1988) provide a detailed summary of housepits and site attributes that had been documented throughout Wyoming to that date. In some aspects, data from 48HO120 are consistent with other documented housepits. Waitkus *et al.* (1988) summarize the variability and patterns found within housepits in Wyoming:

> ". . . It is clear that the use of housepits or other types of structural remains in Wyoming spans a considerable amount of time and that such features exhibit a considerable amount of variation in terms of morphology and artifactual assemblages. Despite the relatively wide range of variation documented thus far, there are also numerous similarities. However, given the relatively few sites which have been found to contain structural remains, it cannot yet be ascertained whether any patterning is due to cultural or other factors, such as where archaeologists have looked."
>
> "Several patterns are evident. First is dating. Although documented structures span at least 5000 years of prehistory, the majority of dated house pits falls within 5000-6000 year range, or the terminal Early Archaic period, the time period when many areas were thought to have been abandoned. It is also apparent that the majority of documented sites seem to be associated with dunal areas in the Wyoming wind corridor. This could be a product of cultural factors, such as those hypothesized by Eckerle [in Waitkus *et al.* 1988], or a function of the degree of archaeological investigation associated with energy development projects, as suggested by Larson (1988)."
>
> "Other patterns are also evident. Generally most Early Plains Archaic house pits exhibit similar construction and are about 2.5 m in size. Most have interior features, some of which have been inferred to have served for food storage. Chipped stone assemblages seem to reflect final stages of tool maintenance, and faunal assemblages indicate a reliance on small game. Floral assemblages also indicate exploitation of a wide variety of seeds and other plant parts for use as food" (Waitkus *et al.* 1988:290).

However, Feature 31 at 48HO120 is also inconsistent with several of these patterns. It is unusual in that it dates to the Middle Archaic Period. It is also one of the few housepit sites that is associated with alluvial, rather than eolian, deposition. This structure may be somewhat larger, depending upon how measurements were taken, than other housepits. It shows no evidence of interior storage features. It is similar to most other sites in the predominance of small animal remains and debitage indicative of final tool manufacture or maintenance.

SUMMARY AND CONCLUSIONS

In general, the housepit at 48HO120 was similar to other housepits documented in Wyoming. The subsistence data from the housepit at 48HO120 are consistent with that from other housepit sites. These suggest a reliance on small mammals and edible plants, rather than a reliance on large game. There does not appear to be a great deal of initial tool production occurring at this location, but rather an emphasis on tool maintenance. In fact, there appears to be very little tool discard and loss as evidenced by the few tools recovered.

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David Reiss
Office of the Wyoming State Archaeologist
Department of Anthropology
University of Wyoming
Laramie, Wyoming

David G. Eckles
Office of the Wyoming State Archaeologist
Department of Anthropology
University of Wyoming
Laramie, Wyoming

Karin M. Guernsey
Office of the Wyoming State Archaeologist
Department of Anthropology
University of Wyoming
Laramie, Wyoming

Michael McFaul
LaRamie Soils Service
Laramie, Wyoming

William R. Doering
LaRamie Soils Service
Laramie, Wyoming